# SANDRA K. HUNTER, Ph.D., FACSM

## **OCTOBER, 2020**

PRIMARY POSITION PROFESSOR

Exercise Science Program | Department of Physical Therapy

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## I. EDUCATION

Postdoctoral Research Associate University of Colorado, Boulder, CO 1999 - 2003

Neural Control of Movement Laboratory,

Department of Kinesiology and Applied Physiology

**Director:** Professor Roger M Enoka.

**Doctor of Philosophy** *University of Sydney*, Australia 1998

Exercise & Sport Science Dissertation: 'Human Skeletal Muscle Function and Morphology:

The Effects of Ageing and Exercise'

Advisor: Associate Professor Martin Thompson.

Graduate Diploma University of Wollongong, Australia 1992

Human Movement Science

Bachelor of Education University of Sydney, Australia 1985

Physical Education & Health

## II. ACADEMIC, SCHOLARLY AND PROFESSIONAL EXPERIENCE

Director Athletic and Human Performance Research Center 06.2020 - present

Marquette University, Milwaukee, WI Office of Research and Innovation

Planning Director Athletic and Human Performance Research Center 09.2018 – 06.2020

Marquette University, Milwaukee, WI Office of Research and Innovation

Professor Marquette University, Milwaukee, WI 08.2014 - present

Exercise Science Program, Department of Physical Therapy

Associate Professor Marquette University, Milwaukee, WI 08.2009 - 07.2014

Exercise Science Program, Department of Physical Therapy

Assistant Professor Marquette University, Milwaukee, WI 08.2003 - 07.2009

Exercise Science Program, Department of Physical Therapy

Postdoctoral Research Associate University of Colorado, Boulder, CO 04.1999 - 07.2003

Neural Control of Movement Laboratory

Department of Kinesiology and Applied Physiology

Research: Mechanisms of neuromuscular fatigue and muscle function: aging

and sex differences

Director: Professor Roger M Enoka

Research Assistant Nepean Hospital, Sydney, Australia 1998 - 1999

Division of Geriatrics & Rehabilitation

Research: Strength and aerobic training in dependent old adults

Research Assistant University of Sydney, Australia 1994 - 1999

School of Physiotherapy and School of Exercise & Sport Science

Teaching Assistant University of Sydney, Australia 1992 - 1996

School of Exercise & Sport Science

Teaching areas: exercise physiology and biomechanics

High School Teacher Downlands College, Toowoomba, Queensland, Australia 1985 - 1988

Physical Education, Health & Geography Teacher; Women's Sports Coordinator

## III. PUBLICATIONS

## A. REFEREED JOURNALS

#### **JOURNAL PUBLICATIONS**

- 120. Ansdell P, Thomas K, Hicks K, <u>Hunter SK</u>, Howatson G, Goodall S. Physiological sex differences affect the integrative response to exercise: acute and chronic implications *Experimental Physiology*, accepted for publication, Sept 28, 2020.
- 119. Ansdell P, Škarabot J, Atkinson E, Corden S, Tygart A, Hicks KM, Thomas K, <u>Hunter SK</u>, Howatson G, Goodall S. Sex differences in fatigability following exercise normalised to the power-duration relationship. <u>J Physiol [London]</u>, First published: 10 Sept 2020 https://doi.org/10.1113/JP280031.
- 118. Senefeld JW, Singh-Peters LA, Kenno KA, and <u>Hunter SK</u>, and Jakobi JM. Greater fatigue resistance of dorsiflexor muscles in people with prediabetes than Type 2 Diabetes. <u>Journal of Electromyography & Kinesiology</u>, accepted for publication, Aug 19, 2020.
- 117. Kwon M, Senefeld JW, and <u>Hunter SK</u>. Attenuated activation of knee extensor muscles during fast contractions in older men and women. <u>Eur J Appl Physiol</u>, Aug 13, 2020. Online ahead of print. PMID: 32789699 DOI: 10.1007/s00421-020-04451-0
- 116. Senefeld JW, Keenan KG, Ryan KS, D'Astice SE, Negro F and <u>Hunter SK</u>. Greater fatigability and motor unit discharge variability in human type 2 diabetes. <u>Physiological Reports</u>, Jul;8(13):e14503, 2020. DOI: 10.14814/phy2.14503. PMID: 32633071, PMCID: PMC7379048
- 115. Teigen, L, Sundberg CW, Kelly L, <u>Hunter SK</u>, and Fitts RH. Ca2+ dependency of limb muscle fiber contractile mechanics in young and older adults. <u>Amer J Physiol</u>: <u>Cell Physiol</u>, Apr 29. 2020. doi: 10.1152/ajpcell.00575.2019. PMID: 32348175
- 114. Joyner M, <u>Hunter SK</u>, Lucia A, and Jones A. Last Word on Viewpoint: Physiology and fast marathons. <u>J Appl Physiol</u> 128: 1086–1087, 2020. https://doi.org/10.1152/japplphysiol.00181.2020.
- 113. Joyner M, <u>Hunter SK</u>, Lucia A, and Jones A. Physiology and Fast Marathons. <u>J Appl Physiol</u> 128: 1065–1068, 2020. doi: 10.1152/japplphysiol.00793.2019. PMID: 31944889 https://journals.physiology.org/doi/pdf/10.1152/japplphysiol.00793.2019
- 112. Senefeld JW, Harmer AR, Magill SB, Harkins A, and <u>Hunter SK</u>. Greater fatigability of the lower limb in people with type 2 diabetes and prediabetes. <u>Med Sci Sport Exer</u> May;52(5):1176-1186, 2020. DOI: 10.1249/MSS.0000000000002238. PMID: 31815831. https://pubmed.ncbi.nlm.nih.gov/31815831/?from\_term=Greater+fatigability+of+the+lower+limb+in+people+with+type+2+diabetes+and&from\_pos=2

- 111. Rozand V, Sundberg CW, <u>Hunter SK</u>, Smith AE. Age-related deficits in voluntary activation: a systematic review and meta-analysis. *Med Sci Sports Exer.* 52 (3), 549-560, 2020. doi:10.1249/MSS.000000000002179. PMID: 31688647.
- 110. Senefeld J, D'Astice S, Harmer AR, and <u>Hunter SK</u>. Increased cardiovascular response to a 6-minute walk test in people with type 2 diabetes. <u>Diabetes Spectrum</u>. Feb;33(1):104-110, 2020. doi: 10.2337/ds19-0002. PMID: 32116462

- 109. Ansdell P, Brownstein CG, Škarabot J, Hicks KM, Howatson G, Thomas K, <u>Hunter SK</u>, Goodall S. Methodological issues influence determination of critical force during intermittent exercise: authors' reply. <u>J Physiol.</u> Dec;597(24):5987-5989, 2019. doi: 10.1113/JP279085. PMID: 31763698
- 108. Ansdell P, Brownstein CG, Škarabot J, Hicks KM, Howatson G, Thomas K, <u>Hunter SK</u>, and Goodall S. Sex differences in fatigability and recovery relative to the intensity-duration relationship. <u>J Physiol.</u> 597 (23), 5577-5595, 2019. doi: 10.1113/JP278699.] PMID: 31529693.
- 107. Sundberg CW, Prost RW, Fitts RH, <u>Hunter SK</u>. Bioenergetic basis for the increased fatigability with ageing. <u>J Physiol.</u> Oct;597(19):4943-4957, 2019. doi: 10.1113/JP277803. PMID: 31018011
- 106. Senefeld JW, <u>Hunter SK</u>. Are masters athletic performances predictive of human aging in men and women? <u>Mov Sport Sci/Sci Mot.</u> July 12, 2019. <a href="https://doi.org/10.1051/sm/2019018">https://doi.org/10.1051/sm/2019018</a>.
- 105. Rozand V, Senefeld JW, Sundberg CW, <u>Hunter SK</u>. Differential effects of aging and physical activity on corticospinal excitability of upper and lower limb muscles. <u>J. Neurophysiology.</u> Jul 1;122(1):241-250, 2019. <a href="https://doi.org/10.1152/jn.00077.2019">https://doi.org/10.1152/jn.00077.2019</a>, PMID:31091158
- 104. Ansdell P, Brownstein CG, Škarabot J, Hicks KM, Simoes D, Thomas K, Howatson G, <u>Hunter SK</u>, Goodall S. Menstrual cycle associated modulations in neuromuscular function and fatigability of the knee extensors in eumenorrheic females. <u>J Appl Physiol</u>, Jun 1;126(6):1701-1712, 2019. <a href="https://doi.org/10.1152/japplphysiol.01041.2018">https://doi.org/10.1152/japplphysiol.01041.2018</a>, PMID: 30844334
- 103. Murphy S, Durand M, Negro F, Farina D, <u>Hunter SK</u>, Schmit B, Gutterman D, Hyngstrom A. The Relationship Between Blood Flow and Motor Unit Firing Rates in Response to Fatiguing Exercise Post-stroke. <u>Front Physiol</u>. May 10;10:545, 2019. doi: 10.3389/fphys.2019.00545. eCollection 2019. PMID: 31133877. https://www.frontiersin.org/articles/10.3389/fphys.2019.00545/full
- 102. Deering RE, Pashibin T, Cruz M, <u>Hunter SK</u>, Hoeger Bement M. Fatiguing trunk flexor exercise decreases pain sensitivity in postpartum women. <u>Frontiers in Physiology</u>, Mar 26;10:315. doi: 10.3389/fphys.2019.00315. eCollection 2019. PMID: 30971949 https://www.ncbi.nlm.nih.gov/pubmed/30971949
- 101. Senefeld J, Limberg JK, Lukaszewicz KM and <u>Hunter SK.</u> Exercise-induced hyperemia is associated with knee extensor fatigability in adults with Type 2 diabetes. *J Appl Physiol.* Mar 1;126(3):658-667, 2019. PMID: 30605399.
- 100. Pereira HM, Schindler-Delap B, Keenan KG, Negro F, Farina D, Hyngstrom AS, Nielson KA, and <u>Hunter SK.</u> Oscillations in neural drive and age-related reductions in force steadiness with a cognitive challenge. <u>J Appl Physiol</u>, Apr 1;126(4):1056-1065, 2019. https://doi.org/10.1152/japplphysiol.00821.2018, PMID: 30817244

- 99. Murphy SA, Negro F, Farina D, Onushko T, Durand M, <u>Hunter SK</u>, Schmit BD and Hyngstrom AS. Stroke increases ischemia-related decreases in motor unit discharge rates <u>J Neurophysiol</u>, 120: 3246 –3256, 2018. doi: 10.1152/jn.00923.2017. PMID: 30379629
- 98. Pereira HM, Schlinder-Delap B, Nielson KA, <u>Hunter SK</u>. Force steadiness during a cognitively challenging motor task is predicted by executive function in older adults. *Frontiers in Physiology* 9(1316), 2018.
- 97. Sundberg CW, <u>Hunter SK</u>, Trappe SW, Smith CS, Fitts R. Effects of elevated H+ and Pi on the contractile mechanics of skeletal muscle fibres from young and old men: implications for muscle fatigue in humans. <u>J Physiol</u>. Sep;596(17):3993-4015, 2018. PMID: 29806714 PMCID: PMC6117549.
- 96. Deering RE, Senefeld JW, Pashibin T, Neumann DA, Cruz M, <u>Hunter SK</u>. Fatigability of the lumbopelvic stabilizing muscles in women 8 and 26 weeks postpartum. <u>Journal of Women's Health Physical Therapy</u>. Sep-Dec;42(3):128-138. 2018. PMID: 30740039. PMCID: PMC6366649.
- 95. Senefeld J, Magill SB, Harkins A, Harmer AR, <u>Hunter SK.</u> Mechanisms for the increased fatigability of the lower limb in people with Type 2 Diabetes. *J Appl Physiol.* Aug 1;125(2):553-566, 2018. PMID: 29596017

- 94. Deering RE, Cruz M, Senefeld JW, Pashibin T, Eickmeyer S, <u>Hunter SK.</u> Impaired trunk flexor strength, fatigability and steadiness in postpartum women. *Med Sci Sports Exer.* Aug;50(8):1558-1569, 2018. PMID: 29554014.
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- 92. Keenan, KG, Senefeld JW & <u>Hunter SK.</u> Girls in the Boat: Sex Differences in Rowing Performance and Participation. <u>PLOS ONE.</u> Jan 19;13(1):e0191504. doi: 10.1371/journal.pone.0191504. eCollection 2018. PMID: 29352279.
- 91. Senefeld JW, Pereira HM, Elliott N, Yoon T and <u>Hunter SK.</u> Sex differences in mechanisms of recovery after isometric and dynamic fatiguing tasks. <u>Med Sci Sports Exerc.</u> 50(5):1070-108, 2018. PMID: 29298217, PMCID: PMC5899026

- Rozand V, Senefeld JW, Hassanlouei H, <u>Hunter SK.</u> Voluntary activation and variability during maximal dynamic contractions with aging. <u>Eur J Appl Physiol</u>. Dec;117(12):2493-2507 2017. PMID: 29058113. https://www.ncbi.nlm.nih.gov/pubmed/29058113
- 89. Andsell P, Thomas K, Howatson G, <u>Hunter SK</u>, Goodall S. Contraction intensity and sex differences in knee-extensor fatigability. <u>J</u> *Electromyogr Kinesiol*. Dec;37:68-74. 2017. doi: 10.1016/j.jelekin.2017.09.003. PMID: 28963937
- Hassanlouei H, Sundberg W, Smith E, Kuplic A, and <u>Hunter SK</u>. Physical activity modulates corticospinal excitability of the lower limb in young and old adults. <u>J Appl Physiol</u>, Aug 1;123 (2):364-374. DOI: 10.1152/japplphysiol.01078.20162017. PMCID: PMC5614787.
- 87. <u>Hunter SK.</u> Performance Fatigability: Mechanisms and Task Specificity. <u>Cold Spring Harb Perspect Med (Biology of Exercise)</u>. May 15. pii: a029728. doi: 10.1101/cshperspect.a029728, 2017. PMID: 28507192. (Invited Review).
- 86. Casamento-Moran A, <u>Hunter SK</u>, Chen YT, Kwon MH, Fox EJ, Yacoubi B, Christou EA. Sex-differences in spatial accuracy relate to the neural activation of antagonistic muscles in young adults. <u>Experimental Brain Research</u>. Aug;235(8):2425-2436, 2017. PMID: 28500456
- 85. Lee A, Baxter J, Eischer C, Gage M, <u>Hunter SK</u>, Yoon T. Sex differences in neuromuscular function after repeated eccentric contractions of the knee extensor muscles. *Eur J Appl Physiol*, Jun;117(6):1119-1130. PMID: 28432420.
- 84. Deering RE, Senefeld JW, Pashibin T, Neumann DA, <u>Hunter SK</u>. Muscle function and fatigability of trunk flexors in men and women <u>Biology of Sex Differences</u>. Apr 17; 8:12, 2017. doi: 10.1186/s13293-017-0133-y. eCollection 2017. PMID: 28428836.
- 83. Kirking M, Berrios Barillas R, Nelson PA, <u>Hunter SK,</u> Hyngstrom AS. Sex differences in neuromuscular fatigue of the knee extensors post stroke <u>Brain Sci</u> Jan 12;7(1). 2017. PMCID: PMC5297297 DOI: 10.3390/brainsci7010008
- 82. Sundberg CW, <u>Hunter SK</u>, Bundle MW. Rates of performance loss and neuromuscular activity in men and women during cycling: evidence for a common metabolic basis of muscle fatigue. <u>J Appl Physiol</u> (1985). Jan 1;122(1):130-141, 2017. doi: 10.1152/japplphysiol.00468.2016. PMID: 27856712
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- 79. <u>Hunter SK.</u> The relevance of sex differences in performance fatigability. <u>Med Sci Sports Exerc</u>. Nov;48(11):2247-2256, 2016 PMID: 27015385 (Invited Review).
- 78. <u>Hunter SK</u>, McNeil CJ, Butler JE, Gandevia SC, Taylor JL. Short-interval cortical inhibition and intracortical facilitation during submaximal voluntary contractions changes with fatigue. <u>Experimental Brain Research</u>. Sep;234(9):2541-51, 2016. doi: 10.1007/s00221-016-4658-9. PMID: 27165508. PMCID: PMC5349854
- 77. Senefeld J, Smith C and <u>Hunter SK</u>. Sex differences in participation, performance and the age of ultramarathon runners. *International Journal of Sports Physiology and Performance* Jul;11(7):635-42, 2016. doi: 10.1123/ijspp.2015-0418. PMID: 26561864
- 76. Senefeld J, <u>Hunter SK</u>. Molecular underpinnings of diabetic polyneuropathy. <u>J Appl Physiol</u> (1985). Jul 1;121(1), 360, 2016. doi: 10.1152/japplphysiol.00380.2016. PMID: 27451278

- 75. Deaner RO, Addona V, Carter RE, Joyner MJ, <u>Hunter SK.</u> Fast men slow more than fast women in a 10 kilometer road race. <u>PeerJ.</u> 2016 Jul 21;4:e2235. doi: 10.7717/peerj.2235. eCollection 2016. PMID: 27547544
- 74. Hunter SK. Sex differences in fatigability of dynamic contractions. *Exp Physiol*. Feb;101(2):250-5, 2016. doi: 10.1113/EP085370. PMID: 26440505. (Invited Review).
- 73. Senefeld J, Joyner MJ, Stevens AA and <u>Hunter SK.</u> Sex differences in elite swimming with advanced age are less than marathon running. <u>Scandinavian Journal of Medicine and Science in Sports</u>. Jan;26(1):17-28, 2016 PMID: 25648250

- 72. Durand M, Schaefer K, <u>Hunter SK</u>, Schmit BD and Hyngstrom AS. Impaired Hyperemic Response to Exercise Post Stroke. <u>PLOS One</u>. 2015 Dec 2;10(12). PMCID: PMC4667998
- Stolzman S, Danduran M, <u>Hunter SK</u> and Hoeger Bement M. Pain response after maximal aerobic exercise in adolescents across weight status. *Medicine & Science in Sports and Exercise*. Nov;47(11):2431-40, 2015. PMCID: PMC4598265
- 70. Yoon T, Doyel R, Widule C and <u>Hunter SK</u>. Sex differences with aging in the fatigability of dynamic contractions. <u>Experimental</u> Gerontology. Oct;70:1-10, 2015. PMID: 26159162
- 69. Pereira HM, Spears VC, Schlinder-Delap B, Yoon T, Harkins A, Nielson KA, Hoeger-Bement M and <u>Hunter SK.</u> Sex differences in arm muscle fatigability with cognitive demand in older adults. <u>Clinical Orthopaedics and Related Research</u>. Aug;473(8):2568-77. 2015. PMID: 25712862
- Pereira HM, Spears VC, Schlinder-Delap B, Yoon T, Nielson KA and <u>Hunter SK</u>. Age and sex differences in steadiness of elbow flexor muscles with imposed cognitive demand. <u>European Journal of Exercise Physiology</u>, Jun;115(6):1367-79, 2015. PMID: 25633070
- 67. Hunter SK, Joyner MJ and Jones AW. Last Word on Veiwpoint: The two-hour marathon: what's the equivalent for women? <u>Journal of Applied Physiology</u>. May 15;118(10):1329, 2015.
- 66. <u>Hunter SK</u>, Joyner MJ and Jones AW. The two-hour marathon: what's the equivalent for women? <u>Journal of Applied Physiology</u>. May 15;118(10):1321-3, 2015.
- 65. Kuhnen HR, Rybar MM, Onushko T, Doyel R, <u>Hunter SK</u>, Schmit BD and Hyngstrom AS. The stroke-related effects on maximal dynamic hip flexor fatigability and functional implications. <u>Muscle Nerve</u>. 51(3):446-8, 2015. PMID: 25399720
- 64. Deaner RO, Carter RE, Joyner MJ, <u>Hunter SK.</u> Men are more likely than women to slow in the marathon. <u>Medicine and Science in Sports and Exercise</u>. 47(3):607-16, 2015. PMID: 24983344.
- 63. Lemley K, <u>Hunter SK</u> & Hoeger Bement MK. Conditioned pain modulation predicts exercise-induced hypoalgesia in healthy adults. *Medicine and Science in Sports and Exercise* 47(1):176-84, 2015. PMID: 24870571

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- 61. Yoon T, Vanden Noven ML, Nielson KA, <u>Hunter SK</u>. Brain areas associated with force steadiness and intensity during isometric ankle dorsiflexion in men and women. <u>Experimental Brain Research</u> 232(10): 3133-3145, 2014. PMCID: PMC4172577.
- Vanden Noven M, Pereira HM, Yoon T, Stevens AA, Nielson KA, & <u>Hunter SK</u>. Motor variability during sustained contractions increases with cognitive demand in older adults <u>Frontiers in Aging Neuroscience</u> May, Volume 6, Article 97, 2014. PMCID: PMC4033244.
- 59. Keller-Ross ML, Pereira H, Pruse J, Yoon T, Schlinder-Delap B, Nielson KA, & <u>Hunter SK</u>. Stressor-induced increase in muscle fatigability of young men and women is predicted by strength but not voluntary activation. <u>Journal of Applied Physiology</u> Apr;116(7):767-78, 2014. PMCID: PMC3972745.
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- 54. Hoeger Bement MK, Drewek B, & <u>Hunter SK</u>. Men report greater pain relief following sustained static contractions than women when matched for baseline pain. *Journal of Motor Behavior* 46(2):107-13, 2014. PMID: 24528132.
- 53. Hoeger Bement MK, Weyer A, Yoon T, <u>Hunter SK</u>. Corticomotor excitability during a noxious stimulus and following exercise in women with fibromyalgia. *Journal of Clinical Neurophysiology* Feb;31(1):94-8, 2014. PMID: 24492452.
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- 49. <u>Hunter SK</u> and Stevens A. Sex differences in marathon running with advanced age: physiology or participation? <u>Medicine and Science in Sports and Exercise</u> Jan;45(1):148-56. 2013.
- 48. Yoon T, Schlinder-Delap B, & <u>Hunter SK</u>. Fatigability and recovery of arm muscles with advanced age for dynamic and isometric contractions. *Experimental Gerontology* 48(2):259-68, 2013. PMCID: PMC3557758.

#### 2012

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- 46. Hyngstrom AS, Onushko T, Heitz R, Rutkowski A, <u>Hunter SK</u>, & Schmit BD. Stroke-related neuromuscular fatigue of the hip flexors and functional implications. <u>American Journal of Physical Medicine & Rehabilitation</u> 91(1):33-42, 2012. PMCID: PMC3940208.

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- 45. Keller ML, Pruse J, Yoon T, Schlinder-Delap B & Harkins A, <u>Hunter SK</u>. Supraspinal fatigue is similar in men and women for a low-force fatiguing contraction. <u>Medicine and Science in Sports and Exercise</u> 43 (10): 1873-1883, 2011.
- 44. Hunter SK. The Two-Hour Marathon: How Important is Age? Journal of Applied Physiology, 110(1):278-93, 2011.
- 43. Hoeger Bement MK, Weyer A, Hartley S, Drewek B, Harkins A, & <u>Hunter SK</u>. Pain perception after isometric exercise in women with fibromyalgia. *Archives of Physical Medicine and Rehabilitation*, 92(1):89-95, 2011.
- 42. <u>Hunter SK</u>, Stevens A, Magennis K, Skelton KW and Fauth M. Is there a sex differnece in the age of elite marathon runners? <u>Medicine Science Sports and Exercise</u> 43(4):656-64, 2011.

## 2010

- 41. Hoeger Bement M, Weyer A, Keller M, Harkins A, and <u>Hunter SK</u>. Anxiety and stress can predict pain perception following a cognitive stressor. *Physiology and Behavior* 101: 87-92, 2010.
- 40. Griffith EE, Yoon T and <u>Hunter SK</u>. Aging and load compliance influence time to task failure for a submaximal fatiguing contraction with the lower leg. *Journal of Applied Physiology* 108(6): 1510-9, 2010.
- 39. <u>Hunter SK</u>. Response to task-specific sex differences in muscle fatigue: Is there a common underlying cause? <u>Exercise and Sports Science Reviews</u> January, 37, 2010.

- 38. Yoon T, Keller ML, Schlinder-Delap B, Harkins A, Lepers R and <u>Hunter SK</u>. Sex differences in response to cognitive stress during a fatiguing contraction. *Journal of Applied Physiology* 107: 1486 1496, 2009.
- 37. Yoon T, Hawe R, and <u>Hunter SK</u>. Variation in limb support influences the time to task failure for a postural contraction. <u>Journal of Motor Behavior</u> 41(5): 393-5, 2009.
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- 35. Hoeger Bement M, Rasiarmos R, DiCapo R, Lewis A, Keller ML, Harkins A, and <u>Hunter SK</u>. Role of the menstrual cycle phase in pain perception before and after isometric contractions. <u>European Journal of Applied Physiology</u> 106(1):105-112, 2009.
- 34. Hoeger Bement MK, Weyer A, Hartley S, Yoon T, and <u>Hunter SK</u>. Exercise attenuates pain-induced corticomotor excitability, *Neuroscience Letters* 452: 209-213, 2009.
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Sara LK, Gutsch SB, & <u>Hunter SK</u> The single-leg heel raise does not predict maximal plantar flexion strength in healthy males and females

Senefeld JW, Wiggins CC, Beilfuss R, Haischer MH, Joyner MJ & Hunter SK. Technological doping in elite marathon performance.

#### **B. BOOK CHAPTERS**

<u>Hunter SK</u> Senefeld JW and Neumann DA. 'Chapter 3: Skeletal Muscle: The Ultimate Stabilizer and Mover of the Skeletal System" in DA Neumann, <u>Kinesiology of the Musculoskeletal System</u> (3<sup>rd</sup> edition); Publisher: Elsevier, 2016.

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#### C. NON REFEREED PUBLICATIONS

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### D. CONFERENCE PROCEEDINGS | ABSTRACTS | 2006 - PRESENT

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132. Sara LK, Yang K, Hart MR, <u>Hunter SK.</u> Maximal Isometric and Dynamic Plantar Flexor Strength in Achilles Tendinopathy. *Combined Sections Meeting of the American Physical Therapy Association*, Denver, CO, Feb 14, 2020.

- 131. Hyngstrom A, <u>Hunter SK</u>, Zhou, Z, Eng M. Sex differences in neuromuscular fatigability post-stroke. *Forward Thinking Poster Session*, Marquette University, Milwaukee, Dec 3, 2019.
- 130. <u>Hunter SK</u>. Fatigability in People with Type 2 Diabetes and Prediabetes. *Canadian Society of Exercise Physiologists Annual Meeting*, Kelowna, BC, Canada, Nov 8, 2019.
- 129. Delgadillo JD, Sundberg CW, Kwon M, <u>Hunter SK</u>. Knee extensor fatigability during different resistance exercise protocols in young and old adults. Poster presentation at the *Society for Neuroscience 49th Annual Meeting*, Chicago, IL, October 21, 2019.
- 128. Hart MR, Sara LK, Geiser M, <u>Hunter SK</u>. Strength and fatigability in Achilles tendinopathy patients. *College of Health Science Summer Undergraduate Research Presentations*, Marquette University, Milwaukee, Aug 2, 2019.
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- 104. Smith AE, Hassanlouei H, Sundberg CW, Kuplic A, <u>Hunter SK</u>. Physical activity modifies corticospinal excitability of the lower extremity in young and old adults. *Poster presentation at Oral Nanosymposium at the Society for Neuroscience 46th Annual Meeting*, San Diego, CA. November 12-17, 2016.
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- 102. Deering R & <u>Hunter SK</u> Abdominal Muscle Function, Pain Perception and Functional Mobility in Women After Pregnancy. *Presented at the North American Spine Society Annual Meeting*, Boston, MA October 26-29, 2016.
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- 64. Rybar M, Kuhnen H, Oullette D, Walker E, Berrios Barillas R, Schmit B, <u>Hunter SK</u>, Hyngstrom AS. Hip flexor fatigue following submaximal concentric contractions and walking function post stroke. *American Physical Therapy Association Combined Sections Meeting*, San Diego, CA. 01.21-24.2013.

- 63. Pereira HM, Spears VC, Schlinder-Delap B, Yoon T and <u>Hunter SK</u>. Age and sex differences in control of force during static contractions with the elbow flexor muscles when cognitive demand is imposed. Society of Neuroscience Abstracts, #789.24, 2012. *Society of Neuroscience Annual Meeting*, New Orleans, LA. 10.13-16.2012.
- 62. Pereira HM, Spears VC, Schlinder-Delap B, Yoon T and <u>Hunter SK</u>. Sex differences in response to cognitive demand during a fatiguing contraction in old adults. *The Biannual Meeting of the International Society of Electromyography and Kinesiology,* Brisbane, Australia. 07.18-21.2012.
- 61. <u>Hunter SK</u>, Yoon T, Onushko T and Christou EA. Age-related difference in time to failure of a submaximal fatiguing contraction is associated with modulation of muscle activity. *The Biannual Meeting of the International Society of Electromyography and Kinesiology*, Brisbane, Australia. 07.18-21.2012.
- 60. Hyngstrom A, Negro F, Kuhnen H, <u>Hunter SK</u>, Keenan K, Farina D, Schmit B. Motor unit behaviour following fatigue in stroke survivors. *International Motorneuron Meeting*, Sydney, Australia. 07.26.2012.
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- 58. Senefeld J, Yoon T, Hoeger Bement M, and <u>Hunter SK</u>. Sex differences in fatigue during dynamic contractions differs between arm and leg muscles. *Medicine and Science in Sports and Exercise*, 44(5):S97, 2012. *American College of Sports Medicine National Annual Meeting*, San Francisco, CA. 05.30.2012.
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- 55. Stevens AA and <u>Hunter SK</u>. Sex differences in marathon performance with advanced age: nature or nurture? *Medicine and Science in Sports and Exercise*, 44(5):S597, 2012. *American College of Sports Medicine National Annual Meeting*, San Francisco, CA. 05.30.2012.
- 54. Hyngstrom AS, Negro F, Keenan K, <u>Hunter SK</u>, Farina D, and Schmit B. Motor unit behavior following fatigue in stroke survivors. *Cellular and Network Functions in the Spinal Cord Meeting*, Madison, WI. 2012.
- 53. Hoeger Bement MK, Weyer A, Yoon T, <u>Hunter SK</u>. Corticomotor excitability during a noxious stimulus and after exercise in women with fibromyalgia. *American Pain Society Annual Meeting*, Honolulu, HI. 05.17-19.2012.
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#### 2010

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- 34. Keller ML, Pruse J, Schlinder-Delap B, Yoon T, <u>Hunter SK</u>. Cognitive stress but not distraction influence the time to task failure for a submaximal fatiguing contraction. *American Physical Therapy Association, Section on Research Retreat*, Monterey, CA. 08.09-13.2009.
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- 28. Hartley SE, Weyer A, <u>Hunter SK</u>, Hoeger Bement MK. Experimental pain measurement in people with fibromyalgia. Accepted for presentation at the *American Physical Therapy Association Combined Sections Meeting*, Las Vegas, NV. 02.09-12.2009.
- 27. Keller ML, Yoon T, Schlinder-Delap B, Pruse J, <u>Hunter SK</u>. Supraspinal fatigue contributes to neuromuscular fatigue after a low-force fatiguing contraction. Accepted for presentation at the *American Physical Therapy Association Combined Sections Meeting*, Las Vegas, NV. 02.09-12.2009.

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- 24. Keller M, Harkins A, Yoon T, Schlinder-Delap B & <u>Hunter SK</u>. Cognitive and physical stressor increases salivary cortisol before and after a low force fatiguing contraction. *Medicine and Science in Sports and Exercise* 40(5), S349; 2008. *American College of Sports Medicine National Annual Meeting*, Indianapolis, IN. 05.28-31.2008.
- 23. Ng AV, Vanden Noven ML, Cowdy J, Farinella J, Heyer E & <u>Hunter SK</u>. Increased muscle fatigability may contribute to cancer-related fatigue in a breast cancer survivor undergoing chemotherapy. *Medicine and Science in Sports and Exercise* 40(5), S290; 2008. *American College of Sports Medicine National Annual Meeting*, Indianapolis, IN. 05.28-31.2008.
- 22. Yoon T, Vanden Noven ML, Verber M, Ng A, Nielson K, and <u>Hunter SK.</u> Brain activation during isometric ankle dorsiflexion at different contraction intensities. *Society of Neuroscience Abstracts* 34, 2008. *Society of Neuroscience Annual Meeting*, Washington DC. 11.19-22.2008.
- 21. Yoon T, Schlinder-Delap B & <u>Hunter SK</u>. Time to failure and muscle activation of a fatiguing contraction alters with practice and age. *Medicine and Science in Sports and Exercise* 40(5), S447; 2008. *American College of Sports Medicine National Annual Meeting*, Indianapolis. IN. 05.28-31.2008.
- 20. Bement MKH, Lewis A, DiCapo J, Rasiarmos R, <u>Hunter SK</u>. Mental stress alters pain perception. *American Physical Therapy Association Combined Sections Annual Meeting*, Nashville TN. 02.2008.
- 19. Bement MKH, Keller ML, Harkins AL, <u>Hunter SK</u>. Cortisol levels before and after isometric contractions are not influenced by the menstrual cycle. *American Pain Society Annual Meeting*, Tampa, FL. 08.2008.

#### 2007

- 18. <u>Hunter SK</u>, Yoon T, Pate B, Rodriguez TM, Christou EA. Low-frequency oscillations in force are associated with heart rate. *Society for Neuroscience Abstracts*, 33, 2007. *Society of Neuroscience Annual Meeting*, San Diego, CA. 11.02-04.2007.
- 17. Yoon T, Schlinder-Delap B, Keller M, & <u>Hunter SK</u>. Supraspinal fatigue increased during a low-intensity sustained fatiguing contraction in young and old adults. *Society for Neuroscience Abstracts*, 33, 2007. *Society of Neuroscience Annual Meeting*, San Diego, CA. 11.02-04.2007.
- 16. Hawe R, Bly SC, Yoon T, <u>Hunter SK</u>. Increased limb support decreases muscle fatigue for the dorsiflexor muscles. *Annual Meeting of the Biomedical Engineering Society*, Los Angeles, CA. 09.26-27.2007.
- 15. Ellingson A, Wong S, <u>Hunter SK</u>, Ng AV. Type of depression influences corticospinal responses: a pilot study. *Annual Meeting of the Biomedical Engineering Society*, Los Angeles, CA. 09.26-27.2007.
- 14. Yoon T, Schlinder-Delap B, Griffith EE & <u>Hunter SK</u>. Fluctuations in motor output are altered with fatigue and age. *Medicine and Science in Sports and Exercise* 39(5); S267, 2007. *American College of Sports Medicine National Annual Meeting*, New Orleans, LA. 05.2007.
- 13. Farinella JM, Corrado G, Griffith E, Jablonski K, Romanowich D, Ng AV & <u>Hunter SK</u>. Task-dependent muscle fatigue in the tibialis anterior. *Medicine and Science in Sports and Exercise* 39(5); S263, 2007. *American College of Sports Medicine National Annual Meeting*, New Orleans, LA. 05.2007.
- 12. Griffith EE, Schlachter KM, Kufahl TD, Ng AV & <u>Hunter SK</u>. The influence of active hyperemia on the sex difference in time to failure of an intermittent fatiguing contraction. *Medicine and Science in Sports and Exercise* 39(5);S471, 2007. *American College of Sports Medicine National Annual Meeting*, New Orleans, LA. 05.2007.

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11. Hoeger Bement MK, Dicapo JM, Rasiarmos R, Lewis A, <u>Hunter SK</u>. Phase of the menstrual cycle does not affect exercise-induced analgesia, *American Physical Therapy Association, Combined Sections Meeting*, Boston, MA., 02.2007.

- 10. Griffith EE, Yoon T, Schlinder-Delap B & <u>Hunter SK</u>. Fatigue within the central nervous system contributes to failure of low-intensity sustained contractions. *American Physical Therapy Association Combined Sections Meeting*, Boston, MA. 02.2007.
- 9. Yoon T, Schlinder-Delap B & <u>Hunter SK</u>. Performance of a cognitive task impairs time to failure and steadiness for a submaximal fatiguing contraction. *Society for Neuroscience Abstracts*, 32, 2006. *Society of Neuroscience Annual Meeting, Atlanta, GA 10.14-10.18.2006*.
- 8. <u>Hunter SK</u>, Yoon T, Lepers R & Schlinder-Delap B. Time to failure for a low-force fatiguing contraction is reduced with exposure to a stressor. *Society for Neuroscience Abstracts*, 32, 2006. *Society of Neuroscience Annual Meeting*, Atlanta, GA 10.14-10.18.2006.
- 7. <u>Hunter SK</u>. Neural mechanisms that contribute to muscle fatigue. *Medicine and Science in Sports and Exercise* 38(5); 46, 2006. *American College of Sports Medicine National Annual Meeting*, Denver, CO. 05.31-06.03, 2006.
- 6. Hoeger-Bement MK, Rasiarmos RL, DiCapo JM, Griffith EE & <u>Hunter SK</u>. Sex differences and reductions in pressure-induced pain following submaximal isometric contractions. *Medicine and Science in Sports and Exercise* 38(5); S504, 2006. *American College of Sports Medicine National Annual Meeting*, Denver, CO. 05.31-06.03.2006.
- 5. Yoon T, Schlinder-Delap B, Griffith EE & <u>Hunter SK</u>. Old adults exhibit greater central fatigue for a long duration low-intensity fatiguing contraction than young adults. *Medicine and Science in Sports and Exercise* 38(5); S179, 2006. *American College of Sports Medicine National Annual Meeting*, Denver, CO. 05.31-06.03.2006.
- 4. Schlachter KM, Griffith EE, Ng AV & <u>Hunter SK</u>. Active hyperemia and vascular conductance differ in men and women matched for strength for an isometric fatiguing contraction. *Medicine and Science in Sports and Exercise* 38(5); S178, 2006. *American College of Sports Medicine National Annual Meeting*, Denver, CO. 05.31-06.03.2006.
- 3. Griffith EE, Yoon T, Schlinder-Delap B & <u>Hunter SK</u>. Sex differences in muscle fatigability is task dependent and not explained by a difference in central fatigue. *Medicine and Science in Sports and Exercise* 38(5); S179, 2006. *American College of Sports Medicine National Annual Meeting*, Denver, CO. 05.31-06.03.2006.
- 2. Hoeger-Bement M, Rasiarmos RL, DiCapo JM, Griffith EE, <u>Hunter SK</u>. Pain decreases after long duration and low intensity isometric contractions in men and women. *Proceedings of the American Pain Society National Meeting*, San Antonio, TX, 05.2006.
- 1. Hoeger-Bement M, DiCapo JM, Rasiarmos RL, Griffith EE, <u>Hunter SK</u>. Maximal voluntary contractions decrease pressure-induced pain in healthy men and women. *Proceedings of the Physical Therapy Combined Sections Meeting*, San Diego, CA, 02.02-06.2006.

## IV. RESEARCH GRANTS

#### A. ACTIVE GRANTS

## **EXTRAMURAL GRANTS | PRINCIPAL INVESTIGATOR |**

. National Institute of Health R01 [R01 AG048262-06]

09.2020 - 08.2025

Title: Fatigability of Limb Muscle in Older Adults: Protective Effects of Exercise. Direct and Indirect Costs: \$3.0 million

Role: PI (Multiple PI with Christopher Sundberg and Robert Fitts)

3. Clinical and Translational Science Institute of Southeast WI

04.2020 - 04.2021

Title: Fatigue and Neuromuscular Function in Adults with Achilles Tendinopathy

Direct and Indirect Costs: \$50,000

Role: PI (Co-PI with Dr Craig Young, MCW)

## **EXTRAMURAL GRANTS | CO-INVESTIGATOR |**

National Institute of Health, NICHD R01 [R01HD099340]

07.2019 - 06.2024

Title: Ischemic conditioning and improved motor function post stroke

Purpose: Quantify increases in walking speed and leg function after four weeks of ischemic conditioning and treadmill training in chronic stroke survivors.

Direct and Indirect Costs: \$2,250,072

Role: Co-I

SANDRA K HUNTER | CURRICULUM VITAE | October 2020

### EXTRAMURAL & INTRAMURAL GRANTS | PRINCIPAL & CO-INVESTIGATOR | SUBMITTED & PENDING

National Institute of Health R01 Resubmission 06.2020

Title: Mechanisms of Fatigability in People with Diabetes

Direct Costs: \$2.5 million

#### **B. COMPLETED GRANTS**

## **EXTRAMURAL GRANTS | PRINCIPAL INVESTIGATOR | COMPLETED**

1. **National Institute of Health R01** [R01 AG048262-01A1] 09.2015 – 08.2020

Title: Fatigability of Limb Muscle in Older Adults: Protective Effects of Exercise.

Direct and Indirect Costs: \$2.8 million

Direct: \$2.1 million

Role: PI (Multiple PI with Robert Fitts)

2. University of South Australia, Australia 03.2018 - 05.2018

Visiting Distinguished Thought Leader Scholarship

Direct: \$11,000 Role: PI

3. **National Institute of Health R21** [R21 AG045766] 07.2014 - 05.2017

Title: Motor Function in Older Adults: The Importance of Apolipoprotein-Ε ε4 Inheritance.

Direct Costs: \$275,000

Role: PI

4. Women's Health Research Program at the Medical College of Wisconsin 03.2015 - 06.2016

Title: Neuromuscular Function in Women Postpartum

Direct Costs: \$50,000 Role: PI (Co-PI with M. Cruz)

5. National Institute of Aging R15 [R15AG039697] 10.2011 - 09.2014

Title: Neuromuscular Fatique: Sex and Age Differences.

Direct Costs: \$273,000

Role: PI

6. Clinical and Translational Science Institute of Southeast WI Brain Imaging Pilot Grant

Title: Brain Activation and the Stress Response During Motor Performance in Older Adults.

Direct costs: \$45,000

Role: PI

7. **National Institute of Aging R15** [1R15AG30730] 09.2008 -10.2011

Title: Neuromuscular Fatigue in Old Adults.

Direct costs: \$150,000

Role: PI

8. Clinical and Translational Science Institute of Southeast WI Doctoral Research Grant

Title: The Influence of Posttraumatic Stress Disorder on Motor Impairment in Veterans.

Direct costs: \$27,000

Role: PI

9. Dr. Judith Stitt Women's Faculty Scholarship: Wisconsin Women's Health Foundation 12.2008 - 12.2010

Title: Sex Differences in the Stress Response and Motor Performance.

Direct costs: \$50,000

Role: PI

10. Medical College of Wisconsin Clinical and Translational Science Institute

of Southeast WI Core Facility for Pilot Funding

Title: Brain Activation During Fatiguing Contractions in Young and Old Adults.

Direct costs: \$16,000

Role: PI

06.2010 - 06.2012

07.2009 - 06.2011

10.2008 - 03.2009

11. National Institute of Occupational, Safety and Health Pilot Training Grant 07.2007 - 06.2008 University of Illinois Chicago Title: The impact of stress on neuromuscular fatiguing contraction in men and women. Direct costs: \$16,000 Role: PI 12. National Institute of Aging RO3 [AG023183] 10.2004 - 09.2006 Title: Task Dependence of Muscle Fatigue of Young and Older Adults. Direct costs: \$82,000 Role: PI 13. American Physiological Society Research Career Enhancement Award 07.2004 - 08.2004 Title: Transcranial magnetic stimulation in the study of muscle fatique in young and old men and women. Direct costs: \$4,000 Role: PI 14. American College of Sports Medicine Research Endowment Award 07.2002 - 06.2003 Title: Sex differences in muscle fatigue of young and older adults. Direct costs: \$9.750 Role: PI INTRAMURAL GRANTS (MARQUETTE UNIVERSITY) | PRINCIPAL INVESTIGATOR | COMPLETED Athletic & Human Performance Research Pilot Award, Marquette University 11.2018-05.2019 Title: The Role of Vascular Dysfunction in Fatique in Adults with Prediabetes and Type 2 Diabetes (PI: K. Lukaszewicz & J. Senefeld) Direct and Indirect Costs: \$15,000 Role: Co-I Way Klinger Research Fellowship at Marquette University 07.2014 - 06.2017 Title: Neuromuscular Fatique in People with Type 2 Diabetes Direct Costs: \$150,000 Role: PI Women's and Gender Studies Collaborative Research Scholarship 07.2011 - 12.2011 Title: Gender Bias in Exercise Performance: Physiology or Participation. Direct Costs: \$4,000 Role: PI Way Klingler Young Scholar Award 07.2007 - 12.2007 Title: Brain activation in young and old adults during fatiguing tasks. Direct costs: \$32,000 Role: PI Regular Research Grant and Summer Faculty Fellowship 07.2007 - 12.2007 Title: The influence of cognitive stress on fatiguing contractions. Direct costs: \$13,285 Role: PI Faculty Development and Summer Scholarship, College of Health Sciences 01.2005 - 08.2005 Title: The role of blood flow in men and women during isometric fatiguing contractions. Direct costs: \$6,000 7. Way Klingler Summer Faculty Scholarship, College of Health Sciences 05.2004 - 08.2004 Title: The influence of vascular conductance in the sex differences of muscle fatigue. Direct costs: \$3,500 Role: PI EXTRAMURAL GRANTS | CO-INVESTIGATOR AND MENTOR | COMPLETED National Institute of Health R15 [R15HD090265] 09.2016 - 03.2019

Title: Exercise Specificity and Fibromyalgia Pain (PI: M. Bement)

Direct Costs: \$300,000

Role: Co-L National Institute of Health R15 [1R15NS084130] (PI: Hyngstrom A) 04.2014 - 03.2017 Title: Neural Mechanisms of Neuromuscular Fatigue Post Stroke. Direct Costs: \$300,000 Role: Co-investigator National Institute of Health R21 [R21NS088818] (PI: Hyngstrom A) 07.2014 - 06.2017 Title: Impaired Blood Flow and Neuromuscular Fatigue Post Stroke. Direct Costs: \$295,000 Role: Co-investigator 4. Clinical & Translational Science Institute of Southeast WI 04.2013 - 12.2014Small Pilot Grant for Trainees (PI: Bement M and Stolzman S) Title: Inflammatory Markers, Physical Fitness and Pain in Children. Direct Costs: \$ 49.861 Role: Consultant Clinical & Translational Science Institute of South East WI 09.2011 - 08.2014 Mentored K12 Award to Dr Allison Hyngstrom (PI: Hyngstrom A) Title: Mechanisms of Neuromuscular Fatigue and Leg Function Post Stroke. Direct Costs: \$386,930 Role: Co-Mentor Clinical and Translational Science Institute of South East WI Small Pilot Grant (PI: Hyngstrom A) 04.2013 - 04.2014 Title: Effects of Altered Perfusion on Neuromuscular Fatigue and Leg Function Post Stroke. Direct costs: \$ 26,204 Role: Co-Investigator 7. Clinical and Translational Science Institute of South East WI Small Pilot Grant (PI: Hyngstrom, A) 06.2011 - 06.2013 Title: Mechanisms of Neuromuscular Fatigue Post Stroke. Direct costs: \$45,000 Role: Co-Investigator 8. American Heart Association Clinical Research Program (PI: Hyngstrom, A) Title: Lea Muscle Fatique and Motor Function Post Stroke. 01.2010 - 12.2011 Direct Costs: \$110,000 Role: Co-Investigator **Arthritis Foundation** (PI: Hoeger-Bement, M.) 01.2008 - 12.2011 Title: Exercise Induced Pain Relief in Women with Fibromyalgia. Direct costs: \$150,000 Role: Co-Investigator National Institute of Occupational, Safety and Health Pilot Training Grant 10.2009 - 09.2010 University of Illinois Chicago (PI: Yoon, T) Title: Brain Activation and the Stress Response During Motor Performance in Older Adults. Direct Costs: \$150,000 Role: Co-PI and Mentor 11. National Institute of Occupational, Safety and Health Pilot Training Grant 10.2008 - 9.2009 University of Illinois Chicago (PI: Vanden Noven, ML) Title: Cognitive Stress and Neuromuscular Fatigue with Aging. Direct Costs: \$20,000 Role: Co-Investigator and Mentor 12. American College of Sports Medicine (PreDoctoral Award for Erin Griffith) 07.2007 - 06.2008 Title: Mechanisms of Task Failure with Aging. Direct costs: \$5,000

Direct and Indirect Costs: \$446,152

Role: Marquette PI and Mentor

13. Dr Judith Stitt Women's Faculty Scholar Wisconsin Women's Health Foundation (Pl: Johnson, M). Title: Gender Differences in the Role of Robotic Rehabilitation Therapy after Stroke. 10.2006 - 09.2008 Direct Costs: \$50,000 Role: Co-Investigator 14. American Pain Society Future Leaders in Pain Management (Pl: Hoeger-Bement, M.) 11.2006 - 10.2007 Title: Acute Hormonal Fluctuations as a Mechanism for Exercise-Induced Hypoalgesia. Direct Costs: \$20,000 Role: Co-Investigator V. Session Chair at Professional Meetings American College of Sports Medicine National Annual Meeting, Boston, MA 2016 Chair of Thematic Poster Session: "'Fatigue" European Congress of Sports Science, Amsterdam, Netherlands 2014 Chair of three sessions International Society for Electromyography and Kinesiology, Brisbane, Australia. 2012 Chair of poster session titled "Muscle Fatique" American College of Sports Medicine National Annual Meeting, Denver, CO 2006 Chair of 2 - hour Thematic Poster Session: "'Skeletal Muscle Fatigue" American College of Sports Medicine National Annual Meeting, Denver, CO 2006 Co-ordinator and Chair of 2- hour Symposium: "Neural Mechanisms Contributing to Muscle Fatique" American College of Sports Medicine National Annual Meeting, Indianapolis, IN 2004 Chair of a 2- hour Symposium: "Muscle Fatigue" American College of Sports Medicine National Annual Meeting, St. Louis, MO 2002 Co-ordinator and Chair of 2- hour Symposium: "Sex Differences in Fatigue and Performance" American College of Sports Medicine National Annual Meeting, Indianapolis, IN 2000 Chair of 2- hour Symposium: "Motor Control" VI. Presentations (Oral) A. INTERNATIONAL PRESENTATIONS (OUTSIDE THE USA) Canadian Society of Exercise Physiologists Annual Meeting, Kelowna, BC, Canada 11.08.2019 Symposium: 'Fatigue in Special Populations' "Fatigability in People with Type 2 Diabetes and Prediabetes" University of South Australia, Adelaide, Australia 04.18. 2018 Sansom Institute Seminar: "Age Differences in Performance Fatigability" Alliance for Research in Exercise, Nutrition and Activity, University of South Australia, Adelaide, Australia 04.19. 2018 ARENA: "Sex Differences in Performance Fatigability" Helping Hand Aged Care Facility, North Adelaide, Australia 04.13. 2018 "Ageing and Fatigue: The Protective Effects of Exercise" International Congress of the Association of Physical Activities and Sport Researchers, Dijon, France 10.31.2017 Invited Speaker: "Sex Differences in Performance Fatigability" Organization for the Study of Sex Differences Annual Meeting, Montreal, Canada 05.2017 Symposium: 'Sex-Specific Mechanisms of Upper Limb Musculoskeletal Disorders" "Sex-Specific Mechanisms of Fatigability" European Congress of Sports Science Invited Speaker. Vienna, Austria 07.2016

[Invited Speaker at the Annual conference of the European College of Sport Science]

"Fatigability Differs with Aging and Task Demands"

4.	Physiology 2015 Cardiff, Wales [Invited Speaker at the Annual conference of the Society of Physiology, London] "Sex Differences in Skeletal Muscle Fatigue"	07.2015
5.	European Congress of Sports Science Plenary Speaker. Amsterdam, Netherlands [Invited Keynote Speaker at the Annual conference of the European College of Sport Science] Plenary session: "Sex Differences in Neuromuscular Fatigue and Performance: Why Does it Matter?"	07.2014
6.	Canadian Society of Exercise Physiology National Meeting Symposium. Quebec City, Canada "Expanding the Tool Box to Understand Neuromuscular Fatigue: An Integrative Approach"	10.2011
7.	Prince of Wales Medical Research Institute, Sydney, Australia Sensorimotor Series. "Muscle Fatigue is Dependent on the Task"	07.2004
8.	Prince of Wales Medical Research Institute, Sydney, Australia Sensorimotor Series. "Sex Differences in Muscle Fatigue"	08.2004
В.	NATIONAL PRESENTATIONS (IN THE USA)	
1.	The Innovation Connection: How Federal Research Benefits Wisconsin, Capitol Hill, Washington DC Hosted by Metropolitan Milwaukee Association of Commerce (MMAC) <a href="https://mmacwiassoc.wliinc28.com/events/The-Innovation-Connection-How-Federal-Research-Benefits-Wisconsin-2">https://mmacwiassoc.wliinc28.com/events/The-Innovation-Connection-How-Federal-Research-Benefits-Wisconsin-2</a>	09.17.2019 380/details
2.	American College of Sports Medicine Annual Meeting, Orlando, FI Symposium Presentation: "Motor Unit Activity in Leg Muscles of People with Type 2 Diabetes"	05.31.2019
3.	University of Utah, Salt Lake City, UT Seminar: "Sex Differences in Fatigability: Why It Matters!"	03.29.2019
4.	Shirley Ryan Abilities Lab, Chicago, Il Ground Round Seminar "Exercise-Related Fatigue with Aging!"	01.23.2019
5.	Colorado State University, Fort Collins, CO Colloquium: "Exercise-Related Fatigue with Aging"	10.19.2018
6.	American College of Sports Medicine Annual Meeting, Boston, MA Symposium: 'Do Physiological Sex-differences Affect Exercise Performance?"  "Sex-differences in Physiological Function: Do they Explain Differences in Exercise Performance?"	06.04.2016
7.	Organization for the Study of Sex Differences Annual Meeting, Philadelphia, PA Symposium: "Sex Differences in Neuromuscular Function and Fatigue?"	05.25.2016
8.	Ball State University, Human Performance Laboratory, Muncie, IN Seminar Series: "Sex Differences in Muscle Fatigue: Does it Really Matter?"	08.27.2015
9.	World Congress on Exercise Fatigue (with the American College of Sports Medicine), San Diego, CA Key Note: "Sex Differences in Muscle Fatigability"	05.27.2015
10.	Musculoskeletal Sex Differences Throughout the Lifespan Research Symposium, Chicago, IL Sponsored by the American Association of Orthopaedic Surgeons and ORR/ORS/CMH-UCD/SWHR "Sex Differences in Muscle Fatigability in Young and Older Adults"	08.01.2014
11.	American College of Sports Medicine Annual Meeting, Orlando, FL  Symposium: 'The 2-hour Marathon'  "Say Differences in the Marathon' 2 Hours What in the Comparable Barrier for Woman?"	05.30.2014
12.	"Sex Differences in the Marathon: 2 Hours: What is the Comparable Barrier for Women?"  University of Oregon Department of Human Physiology Seminar Series, Eugene, OR	04.09.2014
	"Fatigability of Human Muscles: Sex Matters"	
13.	Mid West American College of Sports Medicine Annual Meeting, Merryville, IN Symposium: "Skeletal Muscle Fatigue: Neural contributions and the Impact of Aging"	11.9.2013
14.	American College of Sports Medicine Annual Meeting, Indianapolis, IN Symposium: "Neural Contributions to Muscle Fatigue: Task Matters"	05.31.2013
15.	American College of Sports Medicine Annual Meeting, Baltimore, MD	06.04.2010

	Symposium: The Exercising Female: An Integrated Approach. "Sex Differences in Muscle Fatigue: Mechanisms of Task Specific Muscle Fatigue"	
16.	University of Florida, Department of Health and Human Performance Colloquium, Gainesville, FL "Task Dependence of Muscle Fatigue and Aging"	03.15.2010
17.	University of Chicago, Illinois, Chicago School of Public Health "Cognitive Stress, Mental Attentiveness and Muscle Fatigue"	04.09.2008
18.	American Physical Therapy Association Section on Research Retreat, Pacific Grove, CA Mechanisms Underlying Disordered Movement: Impairments with Force Generation "Skeletal Muscle Fatigue: Task Specificity and Aging"	08.09-13. 2009
19.	Society of the Neural Control of Movement Society, Waikoloa Beach, HI "Central Fatigue: Task Dependence of Muscle Fatigue"	05.02.2009
20.	American College of Sports Medicine Annual Meeting, Indianapolis, IN "Neuromuscular Fatigue and Aging Symposium: Consensus and Controversy: Subject Characteristics"	05.30.2008
21.	Texas A&M University, College Station, TX Motor Control Symposium, Department of Health and Kinesiology. "Neuromuscular Control of Fatiguing Tasks in Young and Old Adults"	04.22.2007
22.	American College of Sports Medicine Annual Meeting, Denver, CO Neural Mechanisms Contributing to Muscle Fatigue Symposium: "Muscle Fatigue and Aging"	05.31.006
23.	American College of Sports Medicine Annual Meeting, Indianapolis, IN Current Issues in Muscle Fatigue Symposium: "Sex Differences in Muscle Fatigue"	06.2004
C.	LOCAL AND REGIONAL PRESENTATIONS	
1.	Medical College of Wisconsin, CTSI Clinical Scholars Symposium 'Building a Research Career'	11.12.2019
2.	Medical College of Wisconsin, 31 <sup>st</sup> MCW Sports Medicine Symposium 'Physiology of the Aging Adult and Athlete'	03.14.2019
3.	Veterans Affairs Medical Center Milwaukee, Dept of Geriatrics, Milwaukee, WI Fatigability and Aging: Mechanisms and the Protective Effects of Exercise	03.31.2017
4.	University of Wisconsin, Whitewater Sex Differences in Exercise Performance: Is it all about physiological differences?	10.30.2016
5.	Medical College of Wisconsin, Dept of Gynaecology and Obstetrics, Milwaukee, WI Neuromuscular Function in Women Postpartum	01.20.2016
6.	Marquette University Board of Trustees, Marquette University, Milwaukee, WI Research in the Athletic Performance Research Center	02.24.2016
7.	Marquette University Advancement, Marquette University, Milwaukee, WI Research in the Athletic Performance Research Center	02.04.2016
8.	Wisconsin's Women's Health Foundation, Annual Research Breakfast, Janesville, WI The Impact of Research in Women's Health	1.30.2015
9.	Marquette Alumni Annual Meeting, Marquette University, Milwaukee, WI Human Performance and Fatigability	01.24.2015
10.	CTRH Research Seminar Series, Marquette University, Milwaukee, WI Sex Differences in the Marathon: The comparable 2-hour Marathon for Women	12.04.2014
11.	St Johns Retirement Community on the Lake, Milwaukee, WI Aging and Neuromuscular Function: Can we do anything about it?	11.01.2013
12.	Marquette University Manresa Faculty Development Seminar & Round Table Secrets of a Faculty Life Work Balance	11.2012

13.	CTRH Research Seminar Series, Marquette University, Milwaukee, WI Neuromuscular Fatigue: Does it Matter?	11.01.2012
14.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series: <i>Age Differences and Neuromuscular Fa</i>	06.21.2012 tigue.
15.	University of Wisconsin - Milwaukee, WI Seminar in the Dept of Kinesiology and Human Movement Sciences: Sex Differences in Neuromuscular Fatigue	04.09.2012
16.	CTRH Research Seminar Series, Marquette University, Milwaukee, WI Neuromuscular Fatigue: An Integrative Approach	12.01.2011
17.	Marquette College of Health Sciences Alumni & Advancement Event, Washington DC The Aging Brain: Can We Turn Back the Clock?	11.2011
18.	Marquette University, Milwaukee, WI Meeting of the Minds Research Seminar. "Strength and Speed Decline with Age: Can this be Reversed with Strength Training"	09.16.2010
19.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series: Aging, Sex Differences and Muscle Fati	06.23.2010 gue
20.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series. Aging and Muscle Fatigue	06.2009
21.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series. <i>Muscle Fatigue in Old Adults</i>	07.08.2008
22.	Marquette University, Milwaukee, WI Physical Therapy Department Meeting of the Minds Research Seminar: <i>Neuromuscular Control of Fatiguing Tasks</i>	08.2007
23.	Medical College of Wisconsin, Milwaukee, WI Physical Medicine & Rehabilitation Research Ground Rounds: <i>Aging and Neuromuscular Control of Fatiguing Tasks</i>	07.20.2007
24.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series: <i>Mechanisms for Age Differences in Mus</i>	06.12.2006 scle Fatigue
25.	University of Wisconsin – Milwaukee, WI Seminar in Human Movement Sciences: <i>Muscle fatigue in Older Adults</i>	05.09. 2006
26.	Marquette University, Milwaukee, WI College of Health Sciences Undergraduate Summer Research Program Series: <i>Mechanisms for Sex and Age Difference</i> Fatigue	06.22.2005 es in Muscle
27.	Marquette University, Milwaukee, WI Department of Physical Therapy. <i>Muscle Fatigue is Task Dependent</i>	04.2003
D.	PRESENTATIONS   AT DOCTORAL AND POST DOCTORAL LEVEL	
1.	<b>University of Colorado</b> , Department of Kinesiology and Applied Physiology Colloquium, Boulder, CO "Muscle Fatigue is Dependent on the Details of the Task: Who and How?"	10.2002
2.	Marquette University, Milwaukee, WI Department of Physical Therapy. "Mechanisms of Task Failure"	09.2002
3.	American College of Sports Medicine Annual Meeting, St Louis, MO Sex Differences in Human Performance Symposium: "Sex Differences in the Fatigability of Isometric Contractions in the Adult Neuromuscular System"	06.2002
4.	<b>University of Colorado</b> , Department of Kinesiology and Applied Physiology Colloquium, Boulder, CO "The Fatigability of Muscle in Men and Women: The Imagined Sex-Difference?"	04.2001
5.	<b>University of Colorado</b> , Department of Kinesiology and Applied Physiology Colloquium, Boulder, CO "Plasticity of Old Muscles: Functional and Morphological Adaptations to Strength Training"	11.1999
6.	University of Sydney, Australia. Sports Medicine Australia's Careers Day	06.1998

"The Research Project Manager"

7.	St George Hospital, Sydney, Australia. Colloquium Series: "Adaptations of Muscle Function and Morphology with Age and Resistance Training"	11.1998
8.	Australian Conference of Science and Medicine in Sport, Adelaide, Australia "Physical Activity, Limb Dominance and Muscle Group as Determinants of Strength with Age"	10.1998
9.	Australian Conference of Science and Medicine in Sport, Canberra, Australia "Muscle Size and Morphology of Young and Elderly Women: The Effect of 12 Weeks High Resistance Training"	10.1997
10.	University of Sydney, Australia Nerve and Muscle in Health, Disease and Exercise:10th Biennial Conference of the Department of Biomedical Sciences. "The Effect of Age on Skeletal Muscle of Women"	10.1997
11.	Australian Conference of Science and Medicine in Sport, Canberra, Australia "Effect of High Resistance Strength Training on Functional Capacity of Elderly Women"	10.1996
12.	Sports Medicine Australia's Women's in Sport Meeting, Newcastle, Australia "The Exercise and Sports Scientist"	06.1996
13.	Australian Conference of Science and Medicine in Sport. Hobart, Australia Muscle Function and Size with Age"	10.1995
14.	National Annual Scientific Conference of the Australian Sports Medicine Federation, Brisbane, Australia "Isometric Muscle Function and Reaction Times as a Function of Age"	10.1994
15.	Sydney's Royal Women's Hospital, Sydney, Australia Colloquium Series. "Oestrogen Deficiency and Ageing Skeletal Muscle Function in Post-menopausal Women"	11.1994
16.	National Annual Scientific Conference of the Australian Sports Medicine Federation, Melbourne, Australia "Muscle Function Tests"	10.1993

# VII. TEACHING

## A. COURSE DIRECTOR | GRADUATE

Applied and Rehabilitative Systems Physiology (CTRH 6001, 3 credits)
 Fall 2011, 2012, 2013, 2014, 2015, 2016, 2017

2. Fatigue in Health and Disease (CTRH 6450, 3 credits)

Spring 2014

3. Techniques in the Neural Control of Movement (CTRH 6931, 3 credits)
Spring 2015 and 2017

## **B. COURSE DIRECTOR | UNDERGRADUATE**

Advanced Exercise Physiology Laboratories (EXPH 4195/5195, 1 credit)
 Fall 2012, 2013, 2014, 2015, 2016, 2017

2. Advanced Exercise Physiology (EXPH 4192 and 5192, 4 credits)

Fall 2003-2011

3. Honors: Mission to Mars (HOPR 3957H, 1 credit) Spring 2017

## C. OTHER MAJOR TEACHING RESPONSIBILITIES

Independent Studies (EXPH 4995)

Fall 2019, 1 student (Beilfuss, R) 2 cr

Independent Study (EXSC 195)

Spring 2010, 1 student (Doyle, R) 4 cr Fall 2009, 1 student (Magennis, K) 1 cr

	Spring 2009, 1 student (Cowdy Fall 2005, 1 student (Griffith E) Spring 2005, 2 students (Griffi Fall 2004, 1 student (Griffith E)	th E, Schlachter K)	4 cr 2 cr 2 cr 2 cr
	Independent Study (PHTH 495)  Spring 2005, 1 student (Keller   Spring 2005, 1 student (Barnes		1 cr 1 cr
	Independent Study (PHTH 595) Fall 2009, 1 student (Vanden N Fall 2006, 1 student (Keller M) Fall 2005, 1 student (Keller M) Summer 2005, 1 student (Keller	ŕ	2 cr 3 cr 3 cr 2 cr
	Independent Study (PHTH 295) Spring 2008, 2 students (Vando Summer 2007, 1 student (Kelle		3 cr 1 cr
	Independent Study (INPR 4995) Spring 2012, 1 student (Senefe Spring 2011, 1 student (Senefe		3 cr 3 cr
	Independent Study (INPR 8995) Spring 2014, Rita Deering Spring 2012, Bunyan, S Fall 2011, Pereira H Summer 2011 Pereira H		3 cr 3 cr 2 cr 3 cr
	Independent Study (CTRH 6995)  Summer 2016 Andrew Kuplic Spring 2014 Christopher Sur Spring 2012 Reivian Berrios Fall 2012 Stacy Stolzman		3 cr 3 cr 3 cr 2 cr
2.	Fall 2018: 1 student Fall 2017: 1 student Fall 2016: 1 student Fall 2014: 1 student Fall 2013: 1 student Fall 2011: 2 students Fall 2009: 1 student Fall 2008: 1 student Fall 2007: 1 student Fall 2006: 1 student Fall 2006: 2 students Fall 2005: 2 students	3986, 2 credits) research pradendrickson, Mart, M (honors) D'Astice, S (	cticum
3.	Spring 2015: 1 student F Spring 2014: 1 student E Spring 2009: 1 student C Spring 2006: 1 student F Spring 2005: 1 student K	4986, 16 credits) research premens, Jeshibin, T and Kuplic Acouressa, R. Coon, M. Hennessy, J. Cufahl, T. and Ritland, B.	acticum
4.	College of Health Sciences - Summer Summer 2019: 1 student H	Undergraduate Research Pi lart, M	rogram

SANDRA K HUNTER | CURRICULUM VITAE | October 2020

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Summer 2018: 2 students
                           Yang K and D'Astice S.
Summer 2017: 2 students
                           Ryan K and Hickok S.
                           Adams M and Eble C
Summer 2016: 2 students
Summer 2015: 2 students
                           Pashibin T and Linzmeier C
Summer 2014: 2 students
                           Pashibin T and Kuplic A
Summer 2013: 2 students
                           Buzzard A and Boehlke K.
Summer 2012: 2 students
                           Senefeld J and Elliot N.
Summer 2011: 2 students
                           Senefeld J and Hoffman M.
Summer 2010: 2 students
                           Stevens A* (2nd place) and Kuhn P.
Summer 2009: 2 students
                           Doyel R and Fiandt C* (2nd place).
Summer 2008: 3 students
                           Fauth M* (1st place), Pruse J, and Skelton KW.
Summer 2007: 1 student
                           Bly, SC
Summer 2006: 1 student
                           Wendell. S.
Summer 2005: 1 student
                           Griffith, E.
```

## 5. Department of Biomedical Engineering - Summer Undergraduate Research Program

Summer 2006 (co-mentor) Farinella, J. Summer 2007: 1 student Hawe, R.

- Co-ordinator of Meeting of the Minds Departmental Research Seminar (Spring 2007 to Spring 2010)
- 7. Co-ordinator of Summer Graduate Research Journal Club (Summer 2010)
- Readings and Research in CTRH Graduate Program (CTRH 6958)

Fall 2020: 4 students Fall 2019: 4 students Fall 2018: 4 students Fall 2017: 1 student

Fall 2017: 1 student Hoon K.

Fall 2016: 3 students Sara L, Delgadillo J & Beradi, G.

Fall 2015: 2 students Kuplic, A. Awali, A Fall 2014: 1 student Alsouhibani, A. Fall 2013: 1 student Sundberg C.

Fall 2012: 3 students

Deering R, Malloy P & Senefeld J.

Stolzman S & Berrios-Barillas R

### D. GUEST LECTURER | UNDERGRADUATE

1. Introduction to Exercise Science (EXSC 090 and EXPH 101, 2 cr): 1 lecture x 50 mins, Fall 2004, 2005, 2006, 2007, 2008, 2009, 2011-2017.

## **E. GUEST LECTURER | GRADUATE**

- 1. Physiology of Activity (PHTH 7518, 3 cr): 1 lecture x 80 min, Fall 2008, 2009, 2011-2019.
- 2. Tests and Measures (CTRH 6020): 2 lectures x 2 hours each in Fall 2011, Fall 2012, Fall 2013.
- 3. Introduction to Research (PHTH 558, 1 cr): 2 lectures, Spring 2006.
- 4. Applied Kinesiology (PHTH 570, 4 cr): 2 lectures and 2 laboratories each year, Spring, 2003, 2004 and 2005.
- 5. Physiology of Aging (GERT 202, 4 cr): 1 x 3 hour lecture in Spring 2005, Fall 2006, Spring 2008.

#### VIII. MENTOR

### **CURRENT ASSISTANT PROFESSOR MENTEES**

Ranjana Mehta, PhD. (Texas A&M ADVANCE Scholars Program)
 Assistant Professor in Environmental and Occupational Health, School of Public Health and Industrial and Systems Engineering, College of Engineering, Texas A&M University.

<sup>\*</sup>Awardees of the College of Health Sciences summer undergraduate research presentation day

2. Ashleigh Smith, PhD. 2016 – present

Senior Lecturer, University of South Australia

Visited in April 2016 (4 weeks) and November 2016 (2 weeks) with ongoing collaboration.

## CURRENT POST-DOCTORAL LEVEL | MARQUETTE UNIVERSITY NEUROMUSCULAR CONTROL LAB (PRIMARY ADVISOR)

1. Timothy Fulton July 2019 - present

"Fatigability with Aging: Protective Effects of Exercise"

## VIII. DISSERTATION AND THESIS COMMITTEES

## A. CURRENT MENTOR | ADVISOR | COMMITTEE MEMBER

## **DOCTORAL LEVEL** | MARQUETTE UNIVERSITY NEUROMUSCULAR CONTROL LAB (<u>PRIMARY ADVISOR</u>)

1. Blaine Arney (EXSR program) August 2019 - present

2. Lauren Sara (CTRH program)

August 2016 – present

"Muscle Function and Fatigability in people with Achilles Tendinopathy"

#### **DOCTORAL LEVEL | MARQUETTE UNIVERSITY (COMMITTEE MEMBER)**

Abdulaziz Awali (CTRH program)

2017 - present

"Influence of Experimental Pain Sensitivity and Cardiovascular Autonomic Function on Exercise-Induced Hypoalgesia"

Saad Alqahtani (CTRH program)

2018 - present

"Stroke, ischemia and fatique"

Giovanni Berardi (CTRH program)

"Pain in People with Fibromyalgia Exercise Induced Analgesia"

2016 - present

### MASTERS LEVEL | MARQUETTE UNIVERSITY (PRIMARY ADVISOR)

David Wrucke (incoming ADP student)

## UNDERGRADUATE | MARQUETTE UNIVERSITY (PRIMARY)

Meggie Hart Fall 2018 - present
Karis Yang Fall 2017 - present
Michael Hendrickson Fall 2019 - present
Rachel Beilfuss Fall 2018 - present
Gretchen Zirgaitis (honors) Spring 2020 - present

#### **B. PREVIOUS MENTOR | ADVISOR**

#### POST-DOCTORAL LEVEL | MARQUETTE UNIVERSITY NEURAL CONTROL LAB (PRIMARY ADVISOR)

1. Minhyuk Kwon, PhD 06.2016 – 08.2019

Current Position: Assistant Professor (08.2019 – present)

California State Polytechnic University-Pomona

Jonathon Senefeld, PhD
 05.2018 – 05.2019

**Current Position:** Postdoctoral Research Associate (06.2019 – present)

Mayo Clinic, Rochester, MN

3. Vianney Rozand, PhD 10.2015 – 10.2016

**Current Position:** Assistant Professor (09.2017 – present) Jean Monnet University, (University of Lyon), France

4. Hamidollah Hassanlouei, PhD 10.2014 – 10. 2016

**Current Position**: Lecturer (2016-present)

Tehran University, Tehran, Iran

5. Tejin Yoon, PhD 2006 - 2013

Current Position: Associate Professor, Kangwon National University (2018-present)

Previous Position: Assistant Professor, Department of Kinesiology and Integrative Physiology,

Michigan Technological University (2013 – 2018)

#### **DOCTORAL LEVEL** | MARQUETTE UNIVERSITY NEURAL CONTROL LAB (PRIMARY ADVISOR)

1. Jonathon Senefeld (CTRH program, Marquette University)

PhD, 07.2018

"Mechanisms of Fatigability in People with Type 2 Diabetes and Prediabetes" Current Position: Postdoctoral Fellowship, Mayo Clinic (06-2019 - present)

2. Christopher Sundberg (CTRH program, Marquette University)

PhD, 05,2018

"Mechanisms of Fatigue with Aging: Evidence from the whole limb to the single cell in humans"

Current Position: Assistant Professor, Exercise Science, Dept Physical Therapy, Marquette University (08-2020 - present)

3. Rita Deering (CTRH program, Marquette University)

PhD, 12.2017

"Neuromuscular Function in Women after Pregnancy"

Current Position: Postdoctoral Fellowship: Advanced Women's Health Postdoctoral Fellowship at the University of Wisconsin-Madison and VA (July 1, 2018 – present)

Previous Position: Concordia University, WI - Part Time Teaching

4. Hugo M Pereira (Interdisciplinary, Marquette University; Fulbright Scholar from Brazil)

PhD, 05.2015

"Neuromuscular Function and Fatigue with Cognitive Demand in Young and Old Adults"".

Current Position: Assistant Professor, Dept. of Kinesiology, University of Oklahoma (Aug, 2018 – present)

Previous Position: (2016-2018) Postdoctoral Research Associate, Laboratory of Biomedical Engineering, Dept. of

Telecommunication and Control - School of Engineering, University of São Paulo; São Paulo, Brazil

5. Marnie Vanden Noven (Interdisciplinary, Marquette University)

PhD, 05.2014

"Aging and Neuromuscular Mechanisms of Muscle Fatigue".

Current Position: Associate Professor, Belmont University, TN

6. Manda Keller (Interdisciplinary, Marguette University)

PhD, 12,2011

"Muscle Fatigue and Motor Output Variability with Acute Stress in Healthy Young Adults

and Veterans with Posttraumatic Stress Disorder"

Current Position: (March 2015) Assistant Professor, Department of Physical Therapy, University of Minnesota, MN

Previous Position: (2011-2014). Postdoctoral Research Fellow, Mayo Clinic, Rochester, MN

### **DOCTORAL LEVEL** | MARQUETTE UNIVERSITY (COMMITTEE MEMBER)

1. Ali Alsouhibani (CTRH program) PhD, 12.2019 "Exercise induced analgesia"

PhD, 09.2019. PhD, 09.2019

"Neuromuscular Fatigue in people with Multiple Sclerosis"

Spencer Murphy (Biomedical Engineering) PhD, 10.2018

"Mechanisms of Impaired Motor Unit Firing Behavior of the Vastus Lateralis after Stroke"

PhD, 12.2015

4. Reivian Berrios Barillas (CTRH)
"Reflex Gain Effects on Force Regulation and its Clinical Implications"

PhD, 05.2014

Kathryn Lemley (Interdisciplinary)
 "Mechanisms of Isometric Exercise-Induced Hypoalgesia in Young and Old Men and Women"

2. Dominic Nathan (Biomedical Engineering)

PhD, 12.2010

"Development of a Cortical Reach-to-Grasp Model for Feed Forward Neuroprosthesis"

PhD, 05.2009

Megan Conrad (Biomedical Engineering)
"Effects of distal sensory manipulations on arm movements in post-stroke hemiparesis"

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Carlyn Alt, PT (Interdisciplinary)
 "Mechanisms of muscle fatigue in cancer survivors".

PhD, 05.2006

## **DOCTORAL LEVEL** (AS EXTERNAL EXAMINER)

1.	Peter Poortvliet (University of Queensland, Australia) "Insights into the mechanisms that underlie neuromuscular adaptation to pain using postural and volitional focused motor tasks"	PhD, 11.2013
2.	Sabine Giesebrecht (University of NSW, Australia) "Activity Dependent Changes in Control of Human Motoneurones".	PhD, 11.2010
3.	Tejin Yoon (Seoul National University, Korea) "Central fatigue in young and old men and women".	PhD, 01.2006
4.	Orawan Prasartwuth (University of Sydney, Australia).  "Neural Control of Eccentric Contractions"	PhD, 11.2005
MA	STER'S LEVEL (PRIMARY ADVISOR)	
1.	Kevin Ryan (CTRH program)	05.2019
2.	Jose Delgadillo (CTRH program)	05.2019
3.	Andrew Kuplic (CTRH program)	08.2017
5.	Andrew Raphic (OTRET program)	00.2017
MA	STER'S LEVEL (ADVISOR AND COMMITTEE MEMBER)	
1.	Heidi Hillebrandt (Co-director) University of Newcastle, Newcastle, Australia	12.2017
2.	Henry Kuhn (Biomedical Engineering, Marquette University). "Abnormal neuromuscular fatigue and motor performance of the knee extensors post stroke"	04.2012
3.	Rubing Xu (Biomedical Engineering, Marquette University). "Design and validation of an MR-compatible upper extremity evaluation system to study brain activation patterns after stroke"	01.2010
4.	Debjani Chaudhuri (Biomedical Engineering, Marquette University). "Hip-mediated modulation of spinal reflexes and inhibitory control systems in human spinal cord injury"	01.2006
5.	Vaidehi Chaukulkar (Biomedical Engineering, Marquette University). "Hip position dependent reflex responses to nerve stimulation in human spinal cord injury"	07.2006
6.	Keneilwe Mmopi (University of Sydney, Australia). "Effects of Performance with Combined Endurance and Strength Training"	1998

# UNDERGRADUATE LEVEL (PRIMARY)

1.	David Wrucke	2020-present
2.	Gretchen Zirgaitis	2020-present
3.	Michael Hendrickson	2019-present
4.	Rachel Beilfuss	2019-present
5.	Meggie Rose Hart	2019-present
6.	Rachel Weeks	Fall 2019
7.	Karis Yang	2017-present
8.	Monica Geiser	2017-present
9.	Cassandra Goodrich	2018-2019
10.	Sarah D'Astice	2016 - 2019
11.	Savannah Hickok	2017-2019
12.	Elizabeth Clements	2017-2018
13.	Kevin Ryan	2017- 2018
	Mitch Adam	2016-2018
15.	Jordan Lemens	2016
16.	Tate Pashibin	2014-2016
17.	Christine Eble	2014-2016
18.	Andrew Kuplic	2014-2015
19.	Courtney Linzmeier	2014-2015
20.	Tyler Esser	2014 – 2015
21.	Megan Boyle	Fall 2013 - 2014
22.	Isaac Pierre	Fall 2011 -2014
23.	Caitlin Fortuna	Fall 2012 -2014

25. Ethan Jedziniak       Spring 2014         26. Becky Beroussa       2012- 2014         27. Jonathon Senefeld       2010-2013         28. Anna Buzzard       2013         29. Kelleen Boehlke       Summer 2013         30. Vincent Spears       2011-2013         31. Joseph Fleming       2012-2013         32. Alyssa Stevens       2009-2013         33. Nicholas Elliot       2011-2013         34. Ryan Doyel       2009-2012         35. Kelsey Helland       Spring 2012         36. Katalin Skelton       2008-2011         37. Melanie Hoffman       Summer 2011         38. Peter Kuhn       2010-2011         39. Jaclyn Pruse       2007-2011         40. Matthew Coon       2009         41. Claire Fiandt       2009         42. McKenzie Fauth       2008-2009         43. Joseph Farinella       2006-2008         44. Erin Griffith       2004-2008         45. Sarah Bly       2007         46. Rachel Hawe       Summer 2007         47. Kristine Schlachter       2004-2006         48. Richard Daignault       2006         49. Scott Wendall       2006         50. Jane Hennessy       2006         51. Charnon Barnes<		Joseph Bartoletti	Fall 2012-2014
27. Jonathon Senefeld       2010-2013         28. Anna Buzzard       2013         29. Kelleen Boehlke       Summer 2013         30. Vincent Spears       2011-2013         31. Joseph Fleming       2012-2013         32. Alyssa Stevens       2009-2013         33. Nicholas Elliot       2011-2013         34. Ryan Doyel       2009-2012         35. Kelsey Helland       Spring 2012         36. Katalin Skelton       2008-2011         37. Melanie Hoffman       Summer 2011         38. Peter Kuhn       2010-2011         39. Jaclyn Pruse       2007-2011         40. Matthew Coon       2009         41. Claire Fiandt       2009         42. McKenzie Fauth       2008-2009         43. Joseph Farinella       2006-2008         44. Erin Griffith       2004-2008         45. Sarah Bly       2007         46. Rachel Hawe       Summer 2007         47. Kristine Schlachter       2004-2006         48. Richard Daignault       2006         49. Scott Wendall       2006         50. Jane Hennessy       2006         51. Charnon Barnes       2004-2005         52. James McGuire       2005			
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	51.	Charnon Barnes	2004-2005
	52.	James McGuire	2005
53. Victor Stanton 2005	53.	Victor Stanton	2005
54. Timothy Kufahl 2005	54.	Timothy Kufahl	2005
55. Tiffany Trott 2004-2005			2004-2005
56. Bradley Ritland 2004			
57. Jennie Sanders 2004	57.		2004

# IX. PROFESSIONAL ACTIVITIES AND SERVICE

## A. MEMBERSHIPS IN PROFESSIONAL SOCIETIES

1.	American College of Sports Medicine	1999 - present
	Fellow of ACSM (FACSM)	2005 - present
	Member of Mid-West Regional Chapter	2004 - present
2.	American Physiological Society	2000 - present
3.	Society for Neuroscience	2002 - present
4.	Society for the Neural Control of Movement	2009 – 2012
5.	European College of Sports Science	2013 – present
6.	International Society of Electromyography and Kinesiology	2011 - present

# **B. OTHER PROFESSIONAL ORGANIZATIONS | ACTIVITIES | SERVICE**

1. Fellow of the American Col	llege of Sports Medicine	Conferred 2005
2. Symposium Co-ordinator a	and organizer of two 2-hour symposium at the ACSM national meetings	2001 and 2006

#### 3. Editorial Services for Journals

Associate Editor:Exercise and Sports Science Reviews01.2015 - presentAssociate Editor:Medicine and Science in Sports & Exercise07.2013 - presentEditorial Board:'Journal of Applied Physiology'2007 - 2018Editorial Board:'Journal of Motor Behavior'2012 - 2017

Manuscript reviewer for:

Acta Physiologica Scandinavica Journal of Perceptual Motor Skills

Applied Physiology, Nutrition, and Metabolism

Clinical Neurophysiology

Journal of Physiology

Journal of Sports Science

Clinical Physiology and Functional Imaging

Journal of Visualized Experiments

Diabetes Neuromage Ergonomics Neuroscience

Ergonomics Neuroscience Journal
European Journal of Applied Physiology Medicine and Science in Sports and Exercise

European Journal of Physiology

Experimental Brain Research

Experimental Gerontology

Muscle and Nerve
Physical Therapy
Physiology and Behavior

Experimental Physiology Scandinavian Journal of Medicine Sports Science

Experimental Brain Research Sports Medicine Journals of Gerontology Plos One

Journal of Neurophysiology Frontiers of Aging Neuroscience
Journal of Neuroscience Methods Frontiers of Human Neuroscience

Frontiers in Neurology

## TOTAL NUMBER OF MANUSCRIPTS REVIEWED PER YEAR FOR PEER REVIEWED JOURNALS

2003	14	2006	16	2009	32	2012	30	2015	51	2018	21
2004	13	2007	21	2010	8	2013	31	2016	41	2019	26
2005	22	2008	23	2011 2	26	2014	32	2017	30		

#### C. GRANT REVIEWER

1. University of Wisconsin, Milwaukee: Research Growth Initiative (\$150K)	2009
2. New Zealand Marsden Fund Fast-Start Grant for New Investigators and High Impact Research, \$100K)	2009
3. Canadian National Science and Engineering Research Council (NSERC Discovery Grant, \$250K)	2008 - 2012
4. Canadian Michael Smith Foundation (Postdoctoral research scholarship award)	2011
5. CTSI SE Wisconsin Pilot Award Program	2013-2016
6. NIH grant reviewer for R15 Neurosciences study section (ZRG1 MDCN-R)	2013-present
7. American College of Sports Medicine Grant Review Committee	2017-2020
8. Australian National Health and Medical Research Council (NHMRC) grant.	2018

#### D. EXTERNAL CONSULTATION SERVICE

Expert Panellist & Research Consultant, Halmstad University, Sweden 08.26 – 08.29.2013

Evaluation and recommendations of Biological and Environmental Systems Research Environment

## X. UNIVERSITY SERVICE

#### **A. UNIVERSITY SERVICE**

Marquette COVID-19 Research Initiative Chair
 Committee on Research
 Associate Dean of Research Council member
 Academic Misconduct Investigation Committee
 Spring-Fall 2019

5. Search Committee for the Title IX Director at Marquette Fall 2018

	6.	Forward Thinking Poster Session and Colloquy Presentation Judge	11.28.2017
	7.	Search Committee for the Director of University Advancement (Faculty Representative)	August -Sept 2017
	8.	Athletic Performance Research Center Leadership Team (Team Lead)	Fall 2016
	9.	Pere Marquette Dinner Emcee	05.30.2015
	10.	Innovation Council Review Board	11.2014 - 05.2015
	11.	Presidential Inauguration Ceremony Steering Committee Member	05-09.2014
	12.	Marquette University Strategic Planning Committee	08.2012 - 05.2013
	13.	University Academic Senate Executive Committee	08.2012 - 05.2013
	14.	University Academic Senate: CHS senator (representative)	Spring 2011 - 05.2013
	15.	Gender Resources Center Faculty-in Residence Search Committee	02 - 04.2012
	16.	Mentor in the Faculty Mentoring Program: Mentor in Dept. of Speech Therapy	2010 - 2012
	17.	Committee on Equity	2008 - 2010
	18.	Chair of a University Committee: Comprehensive Planning Committee, Marquette Childca a. Chair of Subcommittee for Program Planning	re Center 2007 - 2010
		b. Chair of Subcommittee for Business Planning	
	19.	Committee on Faculty Women's sub-committee (regular member)	2007
	20.	Manresa First Year Reading Program Discussion Leader	08.2006
В.	СО	LLEGE SERVICE	
	1.	College of Health Sciences Promotion and Tenure Committee Physical Therapy and Exercise Science Representative	2011 – 2016, 2019
	2.	Marquette Presents: 'Exercise is Medicine' Seminar to the public 'Exercise is Medicine and the Effects of Aging.' Organized by the College of Health Science at Marquette University	01.2014
	3.	College of Health Science Advancement Presentation to Alumni Washington DC. Presenter of research	11.2011
	4.	College of Health Science Advancement and Bellin Health Care Presentation to Alumni Green Bay, WI. Presenter of research	05.2011
	5.	College of Health Science Advancement Emersion Day Marquette University. Presenter of research	05.2008
	6.	Integrative Neuroscience Research Center Marquette University. Host and organizer of guest speakers	11.2004 / 11.2006
C.	PR	OGRAM   DEPARTMENTAL SERVICE	
	1.	Graduate student Advising	2004- present
	2.	Undergraduate Student Advising (each semester): 15-48 students/semester (48 students in	Fall 2017) 2003 - 2018
	3.	Faculty Search Committee: Tenure-track Faculty, Department of Physical Therapy	Summer 2016- Spring 2017
	4.	Faculty Search Committee: Tenure-track Faculty, Program in Exercise Science	Spring 2011
	5.	Co-ordinator of Graduate Research Summer Journal Club	06 - 08.2010
	6.	Co-ordinator of Meeting of the Minds Departmental Research Seminar	05.2007 - 2010
	7.	Exercise Science presentation to incoming freshman students and parents	02.2007
	8.	Faculty Search Committee: Tenure-track Faculty, Dept. of Physical Therapy	2006 - 2007
	9.	Faculty Graduation Speech: Exercise Science Program, Dept. of Physical Therapy	05.2006

10.	Co-ordinator of the Exercise Science Research Day: "Fatigue in Health and Disease"	11.2004
	Co-ordinator of a symposium of 6 x 30 min research presentations by graduate and undergraduate students in the Exercise Science Program	
11.	Faculty Search Committee: Tenure-track Faculty, Dept. of Physical Therapy	2004
12.	Faculty Search Committee: Non-tenure (clinical Faculty, Dept. of Physical Therapy	2004

## D. COMMUNITY SERVICE

1. Board Member (Elder) on the Council of Elders, Elmbrook Church, Brookfield January 2015 - present

2. **Mentor and Research Supervisor for High School Student**Divine Holy Savior Angels High School

Summer / Fall 2011 / Spring 2012

# XI. AWARDS AND HONORS

1.	Outstanding Researcher, College of Health Sciences, Marquette University	2020
2.	Visiting Distinguished Thought Leader Award: University of South Australia, Australia \$11,000 awarded by the University of South Australia, to work with faculty and researchers in the Health Sciences and Medical Sciences to enhance research.	2018 Pharmacy and
3.	Nora Finnigan Werra Faculty Achievement Award from the Association of Marquette University Women Alumni	04.2016
4.	'All Star Faculty' Recognition: Marquette University Men's Basketball Game, Bradley Center	01.20.2016
5.	University Excellence in Teaching Award, Marquette University	05.2014
6.	Way Klingler Research in Science Fellowship, Marquette University	04.2014
7.	Appointed Associate Editor of the Journal titled 'Medicine in Science, Sports and Exercise'	2014
8.	National Aeronautics and Space Administration (NASA) and the National Space Biomedical Research Institute Musculoskeletal Workgroup: 2013 Decadal Study workgroup that generated a report on "The Impact of Sex and Gender on Adaptation to Space."	2013
9.	Edward Carroll Teacher of the Year Award, College of Health Sciences, Marquette University	2013
10.	Dr. Judith Stitt Women's Faculty Scholarship: Wisconsin Women's Health Foundation	2008
11.	Way Klingler Young Scholar Award, Marquette University	2007
12.	Fellow of the American College of Sports Medicine (FACSM)	2005
13.	American Physiological Society Research Career Enhancement Award	2004
14.	American College of Sports Medicine Research Endowment Award	2002
15.	Research Excellence, Wendy Eye Award, Best Paper on Women in Sport Australian Conference of Science and Medicine in Sport, Adelaide, Australia	1998
16.	Best Young Scientist Finalist The American Physiological Society Conference, Vancouver, Canada	1996
17.	University of Sydney Postgraduate Research Award Scholarship, Australia	1994 - 1996
18.	Young Investigator of the Year Commendation (Basic Science) Australian Conference of Science and Medicine in Sport. Hobart, Australia	1995

# XII. INTERVIEWS AND CITATIONS IN POPULAR MEDIA

1.	WUWM National Public Radio, Lake Effect Program.  'Mask Mandates are Necessary to Slow the Spread Of COVID-19?' Interview with Audrey Nowakowski  https://www.wuwm.com/post/marquette-study-shows-mask-mandates-are-necessary-slow-spread-covid-19#	09.28.2020 stream/0
2.	Washington Post 'More women gain ground in ultramarathons, and other long-distance races' By Amanda Loudin <a href="https://www.washingtonpost.com/health/women-long-distance-runners/2020/09/25/bffdda10-1871-11ea-a659-7d69641c6ff7_story.html">https://www.washingtonpost.com/health/women-long-distance-runners/2020/09/25/bffdda10-1871-11ea-a659-7d69641c6ff7_story.html</a>	09.26.2020
3.	You are Marquette. 'Surviving COVID-19' https://stories.marquette.edu/surviving-covid-19-e6b782734aa0	08.31.2020
4.	WUWM National Public Radio, Lake Effect Program. 'Tips for Wearing a Mask While Exercising' Interview with Audrey Nowakowski <a href="https://www.wuwm.com/post/tips-wearing-mask-while-exercising#stream/0">https://www.wuwm.com/post/tips-wearing-mask-while-exercising#stream/0</a>	08.04.2020
5.	Discover Magazine '5 Exercise Myths Debunked by Science' <a href="https://www.discovermagazine.com/health/5-exercise-myths-debunked-by-science">https://www.discovermagazine.com/health/5-exercise-myths-debunked-by-science</a>	06.13.2020
6.	Outside magazine 'What the Future of Fast Marathons Looks Like' <a href="https://www.outsideonline.com/2413647/marathon-physiology-study-responses?utm_campaign=rss&amp;utm_source=rss&amp;utm_medium=xmlfeed">https://www.outsideonline.com/2413647/marathon-physiology-study-responses?utm_campaign=rss&amp;utm_source=rss&amp;utm_medium=xmlfeed</a>	05.19.2020
7.	Swedish TV documentary (Swedish national TV) <u>Bästa träningen - 2. "Utan smärta finns ingen njutning heller"</u> (starting at minute 37)	05.10.2020
8.	Federally funded research programs improving human health and safety Wisconsin Business	09.17.2019
9.	Elemental 'What Makes Women Strong?' By Starre Julia Vartan <a href="https://elemental.medium.com/what-makes-women-strong-2c927bf286ef">https://elemental.medium.com/what-makes-women-strong-2c927bf286ef</a>	06.10.2019
10.	The Walrus, 'When Male Runners Lose to Women' By Leyland Cecco <a href="https://thewalrus.ca/when-male-runners-lose-to-women/">https://thewalrus.ca/when-male-runners-lose-to-women/</a>	05.02.2019
11.	WUWM National Public Radio, Lake Effect Program. 'Fit For You: Cold Weather Exercise Tips' Interview with Audrey Nowakowski <a href="https://www.wuwm.com/post/fit-you-cold-weather-exercise-tips#stream/0">https://www.wuwm.com/post/fit-you-cold-weather-exercise-tips#stream/0</a>	01.05.2019
12.	WUWM National Public Radio, Lake Effect Program. 'Fit For You: Men vs. Women in Endurance Sports Interview with Audrey Nowakowski <a href="http://wwwm.com/post/fit-you-men-vs-women-endurance-sports#stream/0">http://wwwm.com/post/fit-you-men-vs-women-endurance-sports#stream/0</a>	07.12.2017
13.	Motor Impairment Blog, Neuroscience Research Australia. 'Why does motor performance decline with aging?' By Sandra Hunter, <a href="https://motorimpairment.neura.edu.au/motor-performance-decline-aging/">https://motorimpairment.neura.edu.au/motor-performance-decline-aging/</a>	05.04.2017
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