

COLLEGE OF HEALTH - PROMOTION AND TENURE VITA

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I Education

Ph.D. Kinesiology, The University of Texas at Austin, 1998, W. W. Spirduso, Advisor  
M.A. Kinesiology, The University of Texas at Austin, 1994, E. F. Coyle, Advisor  
B.S. Mechanical Engineering, The University of Texas at Austin, 1981

II Certifications

None current.

Perviously Registered Professional Engineer in the State of Texas.

III Employment

2016-present Associate Professor, Department of Nutrition and Integrative Physiology,  
University of Utah.

2007-2016 Associate Professor, Department of Exercise and Sport Science,  
University of Utah.

2000-2007 Assistant Professor, Department of Exercise and Sport Science,  
University of Utah.

1998-2000 Research Assistant Professor, Department of Exercise Science,  
University of South Carolina.

IV PROFESSIONAL AFFILIATIONS

1992-Present: American College of Sports Medicine, Fellow.

V PUBLICATIONS

Peer Reviewed Journal Articles: Total citations as of August 3, 2021; 3698, H Index 32, 14 citation classics, and iCite Relative Citation Ratio 1.5.

1. Martin, J.C., B.M. Wagner, and E.F. Coyle. Inertial-load method determines maximal cycling power in a single exercise bout. *Medicine and Science in Sports and Exercise*. 11:1505-1512; 1997
2. Seiler, K.S., W.W. Spirduso, and J.C. Martin. Gender differences in rowing performance and power with aging. *Medicine and Science in Sports and Exercise*. 30: 121-127; 1998

3. Martin, J.C., D.L. Milliken, J.E. Cobb, K.L. McFadden, and A.R. Coggan. Validation of a mathematical model for road-cycling power. *Journal of Applied Biomechanics*, 14(3): 276-291; 1998
4. Fritzsche, R.G., T.W. Switzer, B.J. Hodgkinson, S.H. Lee, J.C. Martin, and E.F. Coyle. Water and carbohydrate ingestion during prolonged exercise increase maximal neuromuscular power. *Journal of Applied Physiology*, 88(2):730-7; 2000
5. Martin, J. C., R.P. Farrar, B.M. Wagner, and W.W. Spirduso. Maximal power across the lifespan. *Journal of Gerontology*. 55A(6) M311-316, 2000
6. Martin, J.C., N.A. Brown, F.C. Anderson, and W.W. Spirduso. A governing relationship for repetitive muscular contraction. *Journal of Biomechanics* 33(8) 969-974, 2000
7. Martin, J.C., D. Dietrich, and E.F. Coyle. Time course of learning to produce maximal power. *International Journal of Sports Medicine*, 21: 485-487, 2000
8. Martin, J.C. and W.W. Spirduso. Determinants of maximal cycling power: Crank length, pedaling rate, and pedal speed. *European Journal of Applied Physiology* 84 (5): 413-418, 2001.
9. Martin, J.C. R. M. Malina, and W.W. Spirduso. The effects of cycle crank length on maximum power and optimal pedaling rate of boys 8-11 years of age. *European Journal of Applied Physiology*, 86 (3): 215-217, 2002.
10. Martin J. C., S.M. Lamb, and N.A.T. Brown. Pedal trajectory alters maximal cycling power. *Medicine and Science in Sports and Exercise*, 34 (8): 1332-1336, 2002.
11. McDaniel J. J.L. Durstine, G.A. Hand, and J.C. Martin. Determinants of the metabolic cost of submaximal cycling. *Journal of Applied Physiology*, 93: 823-828, 2002.
12. Davidson, C.J., E Pardyjak, and J.C. Martin. Training with power measurement: A new era in cycling training. *Strength Cond J. Oct 25 (5): 28-29, 2003.*
13. Moseley, L, J. Achten, J.C. Martin, A.E. Jeukendrup. No differences in cycling efficiency between world-class and recreational cyclists. *Int J Sports Med.* 25(5):374-9, 2004.
14. McDaniel, J., A Subudi, J.C. Martin Torso stabilization reduces metabolic cost of producing cycling power. *Canadian J Appl Physiol.* 2005 30 (4): 433-441, 2005.
15. Mattson, J.P., J. C. Martin. Emphysema-induced reductions in locomotory skeletal muscle contractile function. *Exp Physiol.* 2005 90(4):519-25.
16. Martin, J.C., A.S Gardner, M. Barras, and D.T. Martin Modeling sprint cycling using field-derived parameters and forward integration. *Med Sci Sports Exerc.* 38(3):592-7 2006.
17. Martin, J.C., A.S Gardner, M. Barras, and D.T. Martin. Aerodynamic Drag Area of Cyclists Determined with Field-Based Measures. *Sport Science* 10, 68-69, 2006.
18. Sprague, R., J.C. Martin, C.J. Davidson, R Farrar. Force-Velocity and Power-Velocity Relationships during Maximal During Short Term Rowing Ergometry. *Med Sci Sports Exerc* 39(2):358-364, 2007 (J.C. Martin corresponding author)
19. Korff, T, L.M. Romer, I. Mayhew and J.C. Martin. Effect of pedaling technique on mechanical effectiveness and efficiency in cyclists. *Med Sci. Sports. Exerc* 39(6): 991-995, 2007.

20. Martin, J.C., S.J. Elmer, R.D. Horscroft, N.A.T. Brown, and B.B. Shultz. A low cost instrumented spatial linkage accurately determines ASIS position during cycle ergometry. *Journal of Applied Biomechanics* 23(3): 224-229, 2007.
21. Gardner A.S., J.C. Martin, D.T. Martin, D. Jenkins. Maximal torque-and power-pedaling rate relationships for elite sprint cyclists in laboratory and field tests. *European Journal of Applied Physiology* 101(3): 287-92, 2007.
22. Gardner, A.S., D.T. Martin, D. G. Jenkins, I. Dyer, J. VanEiden, M. Barras and J.C. Martin. Velocity specific fatigue: Quantifying fatigue during variable velocity cycling. *Med Sci. Sports. Exerc.* 41(4): 904-11, 2009.
23. Martin, J.C. and N.A.T. Brown. Joint-specific power production and fatigue during maximal cycling. *Journal of Biomechanics*, 42(4): 474-9, 2009.
24. Korff, T, E. L Hunter, and J. C Martin. Muscular and non-muscular contributions to maximum power cycling in children and adults: Implications for developmental motor control. *Journal of Experimental Biology*, 212: 599-603, 2009.
25. Elmer, S.J., and J.C. Martin. Fourier series Approximations and Low Pass Filtering: Facilitating Learning of Digital Signal Processing for Biomechanics Students. *Sportscience*, 13, 1-8, 2009.
26. McDaniel, J, S.J. Elmer, and J.C. Martin. Limitations of Relaxation Kinetics on Muscular Work. *Acta Physiol.* 198(2):191-8, 2010.
27. McDaniel, J, S.J. Elmer, and J.C. Martin. The effect of shortening history on isometric and dynamic muscle function. *Journal of Biomechanics* 3;43(4):606-11, 2010.
28. Elmer, S.J., M.L. Madigan, P.C. LaStayo, and J.C. Martin. Joint-Specific Power Absorption during Eccentric Cycling. *Clin Biomech* 25(2):154-8, 2010.
29. Tomas, A, E.Z. Ross and J.C. Martin. Fatigue during maximal sprint cycling: unique role of cumulative contraction cycles. *Medicine and Science in Sports and Exercise* 42(7):1364-9, 2010.
30. Quod, M, D.T. Martin, J.C. Martin, and P. Laursen. The Power Profile Test Predicts Road Cycling Power Output. *International Journal of Sports Medicine* 31(6):397-401, 2010.
31. Elmer, S.J. and J.C. Martin. Joint-Specific Power Loss Following Eccentric Exercise. *Medicine and Science in Sports and Exercise*, 42(9):1723-1730, 2010.
32. Elmer, S.J., J. McDaniel, & J.C. Martin, Alterations in neuromuscular function and perceptual responses following eccentric cycling exercise. *European Journal of Applied Physiology.* 110(6):1225-33, 2010
33. Abbiss, C.R. Abbiss, P.B. Laursen, L.G. Karagounis, J.J. Peiffer, D.T. Martin, J.A. Hawley, N.N. Fateheel, J.C. Martin. Single leg cycle training is superior to double leg cycling in improving the oxidative potential and metabolic profile of trained skeletal muscle. *Journal of Applied Physiology* 110(5):1248-55, 2011.
34. Barratt, P.R., T. Korff, S.J. Elmer, and J.C. Martin. Effect of Crank Length on Joint-Specific Power during Maximal Cycling. *Medicine and Science in Sports and Exercise.* 43(9):1689-97 2011.

35. Elmer S.J., J. McDaniel, J.P. Mattson, and J.C. Martin. Effect of a contusion injury on muscular force, power, work, and fatigue. *Scandinavian Journal of Medicine & Science in Sports* 22(4) 488–494 2012.
36. Elmer, S.J., S.A. Hahn, P.D. McAllister, C.H. Leong, J.C. Martin. Improvements in Multi-Joint Leg Function Following Chronic Eccentric Exercise. *Scandinavian Journal of Medicine and Science in Sports*. 22(5) 653-661, 2012
37. Elmer S.J., P. Barratt, T. Korff, and J.C. Martin. Joint-Specific Power Production during Submaximal and Maximal Cycling. *Medicine and Science in Sports and Exercise*. 43(10):1940-7 2011
38. Elmer S.J., C.S. Marshall, K. Wehmanen, M. Amann, J. McDaniel, D.T. Martin, and J.C. Martin. Effects of locomotor muscle fatigue on joint-specific power production during cycling. *Med Sci Sports Exerc*. 2012 Aug;44(8):1504-11.
39. Elmer S.J., M. Amann, J. McDaniel, D.T. Martin DT, and J.C. Martin. Fatigue is specific to working muscles: no cross-over with single-leg cycling in trained cyclists. *Eur J Appl Physiol*. 2013 Feb;113(2):479-88.
40. Elmer S.J. and J.C. Martin. Construction of an Isokinetic Eccentric Cycle Ergometer for Research and Training. *J Appl Biomech*. 29(4): 490-495 2013.
41. Leong, C.H., W. McDermott, S.J. Elmer, J.C. Martin. Chronic Eccentric Cycling Improves Quadriceps Muscle Structure and Maximum Cycling Power. *International Journal of Sports Medicine* 35(07): 559-565, 2014.
42. Elmer, S.J., and J.C. Martin. A Cycling Workstation to Facilitate Physical Activity in Office Settings. *Appl Ergonomics*.45(4) 1240–1246 2014.
43. McDaniel, J., N.S. Behjani, S.J. Elmer, N.A.T. Brown, J.C. Martin. Joint Specific Power-velocity relationships during maximal cycling. *Journal of Applied Biomechanics* 30(3):423-430, 2014.
44. McDaniel, J, S.J. Elmer, J.C. Martin Response to Letter to the Editor: A Counterweight is Not Necessary to Implement Simple, Natural and Comfortable Single-leg Cycle Training *European journal of applied physiology* 114 (11), 2457-2458 2014.
45. Rimer, E.G., Peterson, L.R., Coggan, A.R., J.C. Martin. Acute Dietary Nitrate Supplementation Increases Maximal Cycling Power of Trained Athletes. *International Journal of Sport Physiology and Performance* 11(6):715-720 2016.
46. Elmer, S.J. and J.C. Martin. Biomechanics of Counterweighted One-Legged Cycling. *Journal of Applied Biomechanics* 32 (1), p78-85, 2016.
47. Barratt, P.R., J.C. Martin, S.J. Elmer, and T. Korff. Effects of pedal speed and crank length on pedaling mechanics in submaximal cycling. *Medicine and Science in Sports and Exercise* 48(4):705-713 2016.
48. Leong, C.H., S.J. Elmer, and J.C. Martin. Noncircular chainrings do not influence maximum cycling power. *Applied Biomechanics* 33(6) 410-418.
49. Martin, J.C. and J.A. Nichols. Simulated work loops predict maximal human cycling power. *Journal of Experimental Biology* 2018.

50. Morris, J.S., J.E. Link, J.C. Martin and D.R. Carrier. Sexual dimorphism in human arm power and force: implications for sexual selection on fighting ability. *Journal of Experimental Biology*. 223 Part 2 2020.
51. Tanghe, K.K. and J.C. Martin. Heavy and Explosive Training Differentially Affect Modeled Cyclic Muscle Power. *Med Sci.Sports Exerc*. 52(5) 1068–1075, 2020.
52. T.J. Staples, A.A. Do-Duc, J.E. Link, J.C. Martin. Emphasizing One Leg Facilitates Single-Leg Training Using Standard Cycling Equipment. *Scandinavian Journal of Medicine and Science in Sports*. 30(6) 1017-1023, 2020
53. Elmer, S.J. and J.C. Martin. Metabolic Power and Efficiency for an Amputee Cyclist: Implications for Cycling Technique. *J Appl Physiol*. 130(2):479-484, 2021.doi: 10.1152/jappphysiol.00661.2020.
54. Douglas, J., A. Ross, J.C. Martin. Maximal Muscular Power: Lessons from Sprint Cycling. *Sports Medicine-Open*, 2021.
55. Leong, Chee-Hoi, Elmer, Steven J., & Martin. James C.. (2021). Noncircular Chainrings Do Not Influence Physiological Responses During Submaximal Cycling. *International Journal of Sports Physiology and Performance*. Advance online publication. <https://doi.org/10.1123/ijsp.2019-0778>
56. Cooper, A.N., W.J McDermott, J.C. Martin, S. O’Dulaney, and D.R. Carrier Great power comes at a high (locomotor) cost: the role of muscle fascicle length in the power versus economy performance trade-off. *J Exp Biol*. 2021 Nov 1;224(21):jeb236679.

#### Review articles

1. Jeukendrup, A. and J.C. Martin. Improving cycling performance: How should we spend our time and money? *Sports Medicine*, 31 (7) 2001.
2. Martin, J.C. Muscle power: the interaction of cycle frequency and shortening velocity. *Exercise and Sports Science Reviews* 35(2):74-81, 2007.
3. Martin J.C., C.J. Davidson, and E. Pardyjak. Understanding Sprint-Cycling Performance: The Integration of Muscle Power, Resistance, and Modeling. Invited review. *Journal of Sports Physiology and Performance* 2 (1), 103-119, 2007.

#### Chapters in Edited Books

1. Martin, J.C. and R.M. Malina. Developmental variation in anaerobic performance associated with age and sex. In: Van Praagh, E., ed., Pediatric Anaerobic Performance; 1998.
2. Martin, J.C. and J.E. Cobb. Aerodynamics of cycling: Effects of body position. In Jeukendrup, A. High Performance Cycling. Human Kinetics, Indianapolis IN. 2002.
3. Martin J.C. and J.E. Cobb. Aerodynamics of cycling: Effects of equipment. In Jeukendrup, A. High Performance Cycling. Human Kinetics, Indianapolis 2002.

#### Pending Publications

1. Martin, J.C., S.J. Elmer, V.R. Caiozzo. Virtual Muscle Lab Exercises for Understanding Integrated Neuromuscular Function. In preparation for Journal of Advances in Physiology Education. Approval to submit granted by Associate Editor.

Conference Proceedings, Published Abstracts, and Poster Presentations

1. Martin, J.C. and E.F. Coyle. Inertial loading, design and validation of a method for measuring peak cycling power. Presented at the American College of Sports Medicine 42<sup>nd</sup> Annual Meeting in Minneapolis, Minnesota, 1995.
2. Martin, J.C., S.M. Martin, and W.W. Spirduso. Maximum power and optimal pedaling rate of masters track cyclists. Presented at the 44<sup>th</sup> annual meeting of the American College of Sports Medicine, Denver, Colorado, 1997.
3. Seiler, K.S., J.C. Martin, and W.W. Spirduso. Predictors of rowing performance power in older male rowers. Presented at the American College of Sports Medicine 44<sup>th</sup> Annual Meeting in Denver, Colorado, 1997.
4. Fritzsche, R.G., T.W. Switzer, B.J. Hodgkinson, S.H. Lee, J.C. Martin, P.R. Below, and E.F. Coyle. A 6% carbohydrate solution is better than water at maintaining peak power during prolonged exercise. Presented at the 45<sup>th</sup> annual meeting of the American College of Sports Medicine, Orlando, Florida, 1998.
5. Martin, J.C. and W.W. Spirduso. Scaling of maximal power in boys and men. Presented to the Southeastern Chapter of the American College of Sports Medicine, Norfolk, VA, February, 1999.
6. Menzel, K., J. Loyo, J.C. Martin, and E.F. Coyle. The effects of dehydration, fluid replacement and carbohydrate supplementation on maximal power during football practice. Presented to the Federation of American Societies for Experimental Biology, April, 1999 (cited 11 times).
7. Martin, J.C., N.A. Brown, F.C. Anderson, and W.W. Spirduso. Effects of shortening velocity and cycle frequency of maximal neuromuscular function. Presented at the 46<sup>th</sup> annual meeting of the American College of Sports Medicine. Seattle, WA, 1999.
8. Martin, J.C. and S.M. Lamb. Effects of fatigue on force-velocity characteristics and activation kinetics. Presented at the 47<sup>th</sup> annual meeting of the American College of Sports Medicine. Indianapolis IN, 2000.
9. Martin, J.C. and S.M. Lamb. Effects of duty cycle on maximal cycling power. Presented at the 47<sup>th</sup> annual meeting of the American College of Sports Medicine. Indianapolis, IN, 2000.
10. McDaniel J. and J.C. Martin. Determinants of metabolic cost of submaximal cycling. Presented at the 48<sup>th</sup> annual meeting of the American College of Sports Medicine. Baltimore, MD, 2001.
11. Martin, J.C., R. Pettitt, and B.M. Wagner. Instantaneous joint power during maximal cycling. Presented at the 49<sup>th</sup> annual meeting of the American College of Sports Medicine, St Louis MO, May 2002.

12. Pettitt, R., B.M. Wagner, and J.C. Martin. Average joint power production during maximal cycling. Presented at the 49<sup>th</sup> annual meeting of the American College of Sports Medicine, St Louis MO, May 2002.
13. Martin J. C., and B. M. Wagner. Mechanical energy flow during maximal cycling: Is energy conserved? Presented to the World Congress of Biomechanics Aug 2002. (Cited 2 times)
14. Horscroft, R.D., C.J. David, J. McDaniel, and J.C. Martin. Altered saddle height does not alter joint power distribution during submaximal cycling. Presented at the 50<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco CA. 2003 (Cited 6 times).
15. McDaniel, J., J.P. Mattson, and J.C. Martin. High stimulation frequency alters rate of force development but not maximum force. Presented at the 50<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco CA. 2003
16. Tuohig, M.E., J.P. Mattson, and J.C. Martin. A linear damper model does not fully predict passive muscle work during cyclic length change. Presented at the 50<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco CA. 2003
17. Mattson, J.P., and J.C. Martin. Emphysema alters fatigue characteristics in skeletal muscle. Presented at the 50<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco CA. 2003
18. Martin, J.C., C.J. Davidson, J. McDaniel, and B.M. Wagner. Duty Cycle Alters Maximal Cycling Power. Presented at the 51<sup>st</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2004.
19. Sprague, R.C., J.C. Martin, C.J. Davidson, B.M. Wagner, and R.P. Farrar Short-Term Maximum Rowing Power. Presented at the 51<sup>st</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2004.
20. McDaniel, J., A.W. Subudhi, and J.C. Martin Metabolic Cost of Upper Body Torso Stabilization During Cycling. Presented at the 51<sup>st</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2004.
21. Nagai, T., B.A. MacWilliams, L.E. Dibble, and J.C. Martin Sex Differences in Lower Extremity Kinetics and Kinematics during Landing. Presented at the 51<sup>st</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2004.
22. Davidson, C.J., B.M. Wagner, and J.C. Martin Seated and Standing Maximal Neuromuscular Cycling Power. Presented at the 51<sup>st</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2004 (Cited 4 times).
23. Martin J.C., S Gardner, M Barras, D.T. Martin. Modeling sprint performance with field-derived parameters and forward integration. Presented at the 5<sup>th</sup> Biannual Australasian Biomechanics Conference, Sydney, New South Wales, Australia 2004.
24. Martin, J.C., S. Gardner, M. Barras, and D.T. Martin. Power, Pedaling Rate, and Fatigue During the 200 meter Time Trial. Presented at the 52<sup>nd</sup> annual meeting of the American College of Sports Medicine, Nashville, TN, 2005.
25. Davidson, C.J., R.D. Horscroft, J McDaniel, A Tomas, E.L. Hunter, J.D. Grisham, J.M. McNeil, L.D. Gidley, C. Carroll, F.T. Thompson, and J.C. Martin . The Biomechanics of

- Producing Standing and Seated Maximal Cycling Power. Presented at the 52<sup>nd</sup> annual meeting of the American College of Sports Medicine, Nashville, TN, 2005.
26. McDaniel, J., A Tomas, E.L. Hunter, J.D. Grisham, J.M. McNeil, L.D. Gidley, C. Carroll, F.T. Thompson, C.J. Davidson, R.D. Horscroft, and J.C. Martin . Joint Power Distribution at 60, 90, and 120 rpm During Seated Maximal Cycling. Presented at the 52<sup>nd</sup> annual meeting of the American College of Sports Medicine, Nashville, TN, 2005.
  27. Horscroft, R.D., C.J. Davidson, J McDaniel, E.L. Hunter, J.D. Grisham, J.M. McNeil, L.D. Gidley, C. Carroll, F.T. Thompson, and J.C. Martin . Joint Power Distribution Differs During Maximal and Submaximal Cycling. Presented at the 52<sup>nd</sup> annual meeting of the American College of Sports Medicine, Nashville, TN, 2005.
  28. McDaniel, J., S.J. Elmer and J.C. Martin Submaximal work production scales with isometric force. Presented at the Experimental Biology San Francisco, CA 2006
  29. Hunter E.L., C. Carroll, R.D. Horscroft, J.C. Martin. A Comparison of Children and Adults' Motor Control Strategies During Maximal Cycling Presented at the 53<sup>rd</sup> annual meeting of the American College of Sports Medicine, Denver, CO, 2006
  30. Gidley, L. and J.C. Martin. Biomechanical Determinants of Metabolic Cost of Submaximal Cycling Power Presented at the 53<sup>rd</sup> annual meeting of the American College of Sports Medicine, Denver, CO, 2006
  31. Elmer, S.J., J.C. Martin. Functional and perceptual responses following damaging eccentric exercise. Presented at Experimental Biology, Washington D.C., 2007
  32. Aleksander, T, J.C. Martin. Fatigue during maximal cycling is determined by the number of cycles completed. Presented at the 55<sup>th</sup> annual meeting of the American College of Sports Medicine, Indianapolis, IN, 2008
  33. Elmer, S.J., J. McDaniel, and J.C. Martin. Maximal Neuromuscular Function Following a Contusion Injury. Presented at the 55<sup>th</sup> annual meeting of the American College of Sports Medicine, Indianapolis, IN, 2008.
  34. McDaniel, J., S.J. Elmer, and J.C. Martin. The Influence of Shortening History on Dynamic Muscle Function. Presented at the 55<sup>th</sup> annual meeting of the American College of Sports Medicine, Indianapolis, IN, 2008.
  35. Elmer, S.J., K. Hall, S. Peters, and J.C. Martin. Neuromuscular and Perceptual Aspects of Eccentric Muscle Damage and Recovery. To be presented at the annual meeting of the Southwest Chapter of the American College of Sports Medicine, San Diego, CA, 2008
  36. Tanner, D, M. Madigan, K. Hall, and J.C. Martin. Bilateral deficit during maximal power cycling. Presented at the annual meeting of the Southwest Chapter of the American College of Sports Medicine, San Diego, CA, 2008
  37. Behjani, S. and J.C. Martin. Joint power-velocity relationships during maximal cycling. Presented at the annual meeting of the Southwest Chapter of the American College of Sports Medicine, San Diego, CA, 2008
  38. Thomas, N. and J.C. Martin. Single leg cycling: A biomechanical evaluation. Presented at the annual meeting of the Southwest Chapter of the American College of Sports Medicine, San Diego, CA, 2008



39. Martin, J.C. and N.A.T. Brown. Joint-Specific Power Production and Fatigue during Maximal Cycling. Presented at the 56<sup>th</sup> annual meeting of the American College of Sports Medicine, Seattle, WA, 2009
40. Gardner, A.S., P. Barratt, A. Wylie, J.C. and Martin Relative Rider Size Does Not Influence Drag Reductions during Velodrome Cycling. Presented at the 56<sup>th</sup> annual meeting of the American College of Sports Medicine, Seattle, WA, 2009
41. Thomas, N. and J.C. Martin. Single leg cycling: A biomechanical evaluation. Presented at the 56<sup>th</sup> annual meeting of the American College of Sports Medicine, Seattle, WA, 2009
42. Miller, J.D. S.J. Elmer, S.J. Ives, T.A. VanHaitsma, L.. Thomas , M.A. Hayman, A.A. Fuller-Hayes, and J.C. Martin. Bilateral Deficit in Peak Cycling O<sub>2</sub> Consumption but not Maximum Cycling Power. Presented at the 56<sup>th</sup> annual meeting of the American College of Sports Medicine, Seattle, WA, 2009
43. Elmer, S.J., K. Hall, S. Peters, and J.C. Martin. Neuromuscular and Perceptual Aspects of Eccentric Muscle Damage and Recovery. Presented at the 56<sup>th</sup> annual meeting of the American College of Sports Medicine, Seattle, WA, 2009
44. Elmer, S.J., & Martin, J.C. Biomechanical aspects of eccentric muscle damage and recovery. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
45. Bouwhuis, J.C., Tanner, D.W., Diamond, N.F., Elmer, S.J., & Martin, J.C. Bilateral deficit and asymmetry during short-term maximal cycling. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
46. Madigan, M., Elmer, S.J., & Martin, J.C. Influence of seat position on power absorption during eccentric cycling. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
47. Hills, A.A., Christensen, A.C., Snarr, M.L., Bath, B.S., Elmer, S.J., Martin, J.C. Maximal power produce with flexible and non flexible shoes. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
48. Christensen, A.C., Snarr, M.L., Hills, A.A., Bath, B.S., Elmer, S.J., & Martin, J.C. Bilateral deficit during maximal synchronous cycling. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
49. Diamond, N.D., Bath, B.S., Holscher, R.B., Elmer, S.J., & Martin, J.C. The effects of noncircular chainrings on maximal cycling power. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
50. Snarr, M.L., Christensen, A.C., Hills, A.C., Elmer, S.J., Martin, J.C. Maximal power during asynchronous and synchronous cycling. Presented at the Northwest Biomechanics Symposium, Pullman, WA, June 2009.
51. Elmer, S.J., & Martin, J.C. Biomechanical aspects of eccentric muscle damage and recovery. Presented at the XXII Congress of the International Society of Biomechanics, Cape Town, South Africa, July 2009.
52. Elmer, S.J., & Martin, J.C. Joint-specific power absorption during eccentric cycling. Presented at the American Society of Biomechanics, State College, PA, August 2009.

53. Elmer, S.J., Martin J.C., & McDaniel, J. Influence of relaxation kinetics on muscular work. To be presented at Workshop on Multi-Scale Muscle Mechanics, Woods Hole, MA, September 2009.
54. Grisham, J.D., S.A. Hahn, S.J. Elmer, J.C. Martin. Acute High-Intensity Single-Leg Cycling Decreases Perceived Exertion Associated with Subsequent Submaximal Exercise. Presented at the 57<sup>th</sup> annual meeting of the American College of Sports Medicine, Baltimore, MD 2010
55. Elmer, S.J., K. Hall, S. Peters, and J.C. Martin. Velocity-Dependent Alterations in Recovery of Maximal Power Following Damaging Eccentric Exercise. Presented at the 57<sup>th</sup> annual meeting of the American College of Sports Medicine, Baltimore, MD 2010
56. Martin, D.T., C. Barnes, and J.C. Martin. Does One Exponential Time Constant Explain the Power-Duration Relationship in National Team Road Cyclists? Presented at the 57<sup>th</sup> annual meeting of the American College of Sports Medicine, Denver CO 2011
57. Leong, C.H., S.J. Elmer, C.S. Marshall, K.W. Wehmanen, M. Amann, and J. C. Martin Central and Peripheral aspects of Fatigue Following 30s Maximal Exercise Presented at the 57<sup>th</sup> annual meeting of the American College of Sports Medicine, Denver CO 2011
58. Elmer S.J., C.H. Leong, C.S. Marshall, K.W. Wehmanen, M. Amann, and J. C. Martin Effect of Central and Peripheral Fatigue on Maximal Voluntary Function. Presented at the 57<sup>th</sup> annual meeting of the American College of Sports Medicine, Denver CO 2011
59. Wehmanen, K.W., C.S. Marshall, J.C. Martin, S.J. Elmer. Effects of Temperature And Prior Sprint Efforts On Maximum Cycling Power And Optimal Pedaling Rate. Presented at the 58<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco, CA, 2012
60. Rimer, E.G., C.S. Marshall, K.W. Wehmanen, J.R. Farley, J.C. Martin A Simple Instruction Increases Relative Contribution of Hip Extension Action during Concentric Cycling. Presented at the 58<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco, CA, 2012
61. Elmer, S.J., C.S. Marshall, K.W. Wehmanen, M. Amann, J. McDaniel, D.T. Martin, J.C. Martin Influence Of Exercise-induced Fatigue On Submaximal And Maximal Joint-specific Power Production, FACSM Presented at the 58<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco, CA, 2012
62. Leong, C.H., W.J. McDermott, A.M. Grabowski, C.P. McGowan, J.C. Martin Effect Of Lower Extremity Mass And Inertia Manipulation On Swing Phase Sprint Mechanics. Presented at the 58<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco, CA, 2012
63. Haakonssen, E.C., D.T. Martin, J.C. Martin, L.M. Burke, D.G. Jenkins. Muscle Mass - Cycling Power Relationships in Female Road Cyclists. Presented at the 59<sup>th</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2013
64. Martin, D.T., E.C. Haakonssen, H. Lee, J.C. Bartram, M. Barras, D. McPartland, J.C. Martin. Exercise Duration at Lactate Threshold and Maximum Aerobic Power in Sub-Elite Female Cyclists. Presented at the 59<sup>th</sup> annual meeting of the American College of Sports Medicine, Indianapolis IN, 2013

65. Elmer, S.D., C.S. Marshall, M. Amann, J.C. Martin. Neuromuscular Fatigue, Reserve, and Recovery Following Exhaustive High-Intensity Endurance Exercise. Presented at the 59th annual meeting of the American College of Sports Medicine, Indianapolis IN, 2013
66. Rimer, E.G., C.H. Leong, C.S. Marshall, K.W. Wehmanen, R. Fowles, J.C. Martin. Elite Downhill Racers Demonstrate Greater Leg-Spring Stiffness than Sub-Elite Racers. Presented at the 59th annual meeting of the American College of Sports Medicine, Indianapolis IN, 2013
67. Flyger, N, J. Hillam, F. Billaut, D.T. Martin, R.J. Aughey, J.C. Martin Fatigue In Maximal Isokinetic Cycling Progresses By Number Of Muscle Contractions Not External Work Presented at The Future of Fatigue, Charles Sturt University, Bathurst, NSW, Australia, November 2013.
68. Seegmiller, A.G., J.C. Martin, S.J. Elmer. A Cycling Workstation To Facilitate Physical Activity In Desk-bound Workers. Presented at the New England Regional Meeting of the American College of Sports Medicine. Providence, RI, Nov. 2013
69. Leong, CH, TS Church, S J. Elmer, JC Martin, Non-Circular Chainrings Do Not Improve Maximum Cycling Power or Change Optimal Pedaling Rate. Presented at the 60th annual meeting of the American College of Sports Medicine, Orlando, FL 2014
70. Rimer, EG, SJ. Elmer, JCMartin. Joint-specific Cycling Biomechanics Of A Patellardeficient Leg: A Case Study Presented at the 60th annual meeting of the American College of Sports Medicine, Orlando, FL 2014
71. Willis, S.M., E.G. Rimer, J.C. Martin College Tennis Players Demonstrate Asymmetry During Single-Leg & Double-Leg Countermovement Jump. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
72. Rimer, E.G., L.R. Peterson, A.R. Coggan, J.C. Martin The Effect of Dietary Nitrate Supplementation on Maximal Cycling Power. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
73. Nelson, D.S., J. Link, J.C. Martin A Technique for Assessing the Global Fatigue State During Maximal Cyllcing. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
74. Weitzell, B.A., D.S. Nelson, S.J. Elmer, J.C. Martin A Counterweight Improves Efficiency for an Amputee Cyclist. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
75. Marshall, C.S., S.. Elmer, & J.C. Martin Evaluating Differences in Locomotor Muscle Function During Submaximal and Maximal Cycling Using Joint Work Loops. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
76. Hart, C.R., K.W. Wehmanen, G.Layec, M.J. Rossman, J.D. Trinity, S.Y. Park, T.E. Graham, J.C. Martin, and R.S. Richardson Mitochondrial function and insulin sensitivity following 6 weeks of single-leg cycling in metabolic syndrome patients. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
77. Leong, C.H., S.J. Elmer, J.C. Martin Noncircular Chainrings Do Not Improve Maximum Cycling Power and Joint-Specific Power during Maximal Cycling. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015

78. Elmer, S.J., J. McDaniel, J.C. Martin. Biomechanics of Single- and Double-Leg Cycling. Presented at the 61st annual meeting of the American College of Sports Medicine, San Diego, CA 2015
79. Grainger, K., T. Korff, L.M. Romer, and J.C. Martin, Neuromuscular Control of Freely Chosen Cadence during Submaximal Cycling. Presented at the XXV Congress of the International Society of Biomechanics. Glasgow, Scotland, July 2015.

Other: Patents

1. Muscle exercise devices and associated methods. Inventor: JC Martin. US Patent 8,147,387 Issued April 3, 2012.
2. Power measurement device for a bike trainer. Inventors: RJ Bingham, KC Boman, JC Martin, DJ Hopper, AR Coggan, MJ Suryan. US Patent App. 13/164,476. In Review.

Other: Popular Press Interviews and Contributions

1. Bicycling Magazine: Climb On! For this article I did some mathematical modeling work similar to what we do in research papers. Mark Riedy August 2003
2. Self Magazine: Interview to discuss the paper "Effect of pedaling technique on mechanical effectiveness and efficiency in cyclists."and how it applies to calorie burning during exercise. By Melissa O'Neill July 2007
3. Cyclist Magazine (UK): Interview to discuss several studies on the effect of crank length. Peter Stuart. 2007
4. Outside Magazine: Who would win in a 100: Usain Bolt or a top sprint cyclist? The Wild File: Runners vs. Cyclists. Jun 7, 2010
5. Lava Magazine, the Official Magazine of Ironman Triathlon: In this interview I was asked about the efficacy of non-circular chainrings. Jim Gourley 2011.
6. Scientific American: Should Oscar Pistorius's Prosthetic Legs Disqualify Him from the Olympics? Scientists debate whether prosthetic legs give Pistorius an unfair advantage in the 400-meter race July 24, 2012 Rose Eveleth
7. Forbes: How To Fund Commercialization of University Research? Crowdfunding, of Course! Article on Crowdfunding for Active Desk. Feb 11, 2013. Cheryl Conner.
8. Bicycling Magazine: Interview regarding biomechanical aspects of proper bike fit. Andrew Tilin 2014
9. AARP Magazine: Using Crowdfunding to Start Your Business. It could revolutionize how people raise money for small start-ups — or expose unwary investors to financial peril. by Joe Eaton, AARP The Magazine, October/November 2013
10. Wall Street Journal Health & Wellness: Take Your Bike To Your Desk to Improve Health, May 27, 2014 Ann Lukits.
11. Outside Magazine: Will a Lighter Bike Make Me Faster? March 2015 Amanda Stromoski.
12. KSL Radio: Interviewed by Andrea May on the health effects of sit to stand desks.

13. YouTube video of a talk delivered for the United States Olympic Development Program in 2018: <https://www.youtube.com/watch?v=5i9DtIFi9pM>
14. BikeFit Podcast 2019: <https://blog.bikefit.com/bf-podcast-ep-9-does-crank-length-matter-with-dr-jim-martin/>
15. Endurance Innovation Podcast 2021: <https://endurance-innovation-podcast.simplecast.com/episodes/professor-jim-martin>
16. YouTube video of a talk delivered for Simon Fraser University's Sport Analytics Seminar: [SFU Sports Analytics Seminar: Sprinting for the win: insights from supply & demand modeling - YouTube](#)
17. Faster Podcast 2021 (This one covers the broadest range of topics): <https://podcasts.apple.com/us/podcast/faster-podcast-by-flo/id1368799871?i=1000515174055>
18. Faster Podcast 2022 [Faster - Podcast by FLO: Faster - Podcast by FLO - Episode 74: Optimize Your Cycling Sprint with Jim Martin on Apple Podcasts](#)
19. Cycling Research Network presentation 2022 <https://www.youtube.com/watch?v=jvGQkgfxmzs>

## VI PRESENTATIONS, INVITED LECTURES AND SYMPOSIA

### Invited/Visiting Professor Presentations, International

1. Modeling Sprint Finishes and Mountain Stages in Professional Road Cycling. Presented at The World Commission of Science and Sports Tour de France Conference, Canterbury, UK, July 2007.
2. Neuromuscular and biomechanical aspects of maximal cycling power. Presented to the Queensland Academy of Sport. Brisbane, Queensland, Australia, Dec 2004
3. Biomechanics of cycling: A hands-on workshop. Presented to the Australian Institute of Sport. Canberra, ACT, Australia, Dec 2004
4. Neuromuscular and biomechanical aspects of maximal cycling power. Presented to the Australian Institute of Sport. Canberra, ACT, Australia, Dec 2004
5. The SRM Windtunnel, coming to a road near you. Presented at Science in Endurance Sport: First World Conference on Science in Cycling, Birmingham UK, April 27-28, 2006
6. Crank length, power, and efficiency: What matters and what doesn't. Presented at Science in Endurance Sport: First World Conference on Science in Cycling, Birmingham UK, April 27-28, 2006
7. Targeting Peripheral Metabolic Adaptations with a Single-Leg Cycling Model. Presented to the Australian Institute of Sport. Canberra, ACT, Australia, April 2007.
8. Cycling Aerodynamics: A round table discussion. Presented to the Australian Institute of Sport. Adelaide, SA, Australia, April 2007.
9. Modeling Cycling Performance: What's been done and what's next. Presented to the Australian Institute of Sport. Canberra, ACT, Australia, April 2007.

10. Integrated Neuromuscular Function: Aspects and Applications. Presented to the Australian Institute of Sport. Canberra, ACT, Australia, April 2007.
11. Brown N.A.T., and J.C. Martin. Joint Specific Power Production and Fatigue during Maximal Cycling. Presented at the Pre-World Championships Congress 'Varese 2008-Science of Cycling', Varese, Italy, September 20, 2008.
12. Basic Neuromuscular Function and Cycling Performance: A Roundtable Discussion. Presented to Cycling Australia, Adelaide Australia, February 2009
13. Integrated Neuromuscular Function. Presented to students and faculty at Edith Cowan University, Joondalup Australia, February 2009
14. Myth and Science in Cycling. Presented to students, faculty, and community at Edith Cowan University, Joondalup Australia, February 2009
15. Maximum Power Development for Cycling. Presented to Australian Institute of Sport and Cycling Australia, Adelaide Australia (via teleconference), Feb, 2010
16. Talent Identification for Sprint Cycling. Presented to Australian Institute of Sport and Cycling Australia, Adelaide Australia (via teleconference), May, 2010
17. Modeling Cycling Performance: Principals to Podiums. Presented to English Institute of Sport, Biomechanics and Performance Analysis Group, Woking (London) England, May, 2010.
18. Altered Duty Cycle for Increased Cycling Power. Presented to Sports Science and Coaching Staff of British Cycling, Manchester, UK, May 11, 2010.
19. A Specific Training Model for Improving Excitation and Relaxation Kinetics. Presented to Sports Science and Coaching Staff of British Cycling, Manchester, UK, May 11, 2010.
20. Leg Spring Stiffness: The Key to Running Fast. Presented to British Athletics, Loughborough, UK May 13, 2010. .
21. Muscular Work. Presented to English Institute of Sport, Physiology Group, Nottingham City, UK. May 14, 2010.
22. Duty Cycle. Presented to English Institute of Sport, Physiology, Nottingham City, UK, May 15, 2010.
23. Progress in Neuromuscular Function. Presented as a "SMART Talk" to the Australian Institute of Sport. Canberra, Australia, December 2010.
24. Myth and Science in Cycling. Presented to Australian Institute of Sport, Canberra Australia, December 2010.
25. Muscular Work: Understanding Neuromuscular Function during Cyclic Contractions. Presented to Australian Institute of Sport, Canberra Australia, December 2010.
26. Developing Muscular Power for Sprint Cycling. A roundtable discussion with Cycling Australia and Australian Institute of Sport. Adelaide Australia, December 2010.

27. Improving Team Pursuit Performance. A roundtable discussion with Cycling Australia and Australian Institute of Sport. Adelaide Australia, December 2010.
28. Single Leg Cycling Training. Presented to members of Cycling New Zealand, and Triathlon New Zealand in Auckland via teleconference, December 2011.
29. Modeling to Optimize Cycling Performance: Power Production, Pedaling Rate, Fatigue, and Aerodynamic Drag. Presented as the Keynote address at the National Sports Science Quality Assurance Workshop: Modelling and Aerodynamics in Cycling. December 2012, Adelaide, Australia.
30. Mechanical Energy Conservation during Cycling. Presented to faculty at Sheffield Hallam University Centre for Sport and Exercise Science via Video Skype March 19, 2013.
31. Crank Length and Eccentric Chainrings. Key note presentation at International CycleFit Symposium. London UK, Feb 2014.
32. Modeling Sprint Finishes of Endurance Cycling Competitions. Opening Keynote for German Society of Sport Science Workshop: Modelling in Endurance Sports. Konstanz Germany, September 2016.
33. My Passion, My Career, Making Positive Change. Presented to team building workshop at graduate student retreat for the Dept of Computer Science at Konstanz University, September 2016.
34. Sprinting for the Win, Insights from Supply and Demand Modeling of Sprint Cycling. Presented as a keynote at Science and Cycling, the scientific conference of the Tour de France. Dusseldorf, Germany, June 2017.
35. Myth and Science in Cycling. Presented as a keynote at Science and Cycling, the scientific conference of the Tour de France. Dusseldorf, Germany, June 2017.
36. Biomechanics of Cycling, Insight for Aerodynamic Fitting. To be presented as a keynote at the International Symposium of Cycling Optimization, Muenster Germany, November 2018.
37. Integrated Neuromuscular Function. Presented to Sports Science staff at High Performance Sport New Zealand, Cambridge, New Zealand. May, 2019.
38. Sprinting for the Win, Insights from Supply and Demand Modeling of Sprint Cycling. Sports Analytic Symposium Series at Simon Fraser University, June 2021.  
<https://youtu.be/rYeY-lpG3A>

#### Symposia and Tutorials, National

1. Hawley, J.A., A.E. Juekendrup, D.T. Martin, J.C. Martin, and I Mujika. The science of professional road cycling. Special Event presented at the 48<sup>th</sup> annual meeting of the American College of Sports Medicine. Baltimore, MD, 2001.
2. Martin, J.C., V.J. Caiozzo, and R.R. Neptune. Dynamic Neuromuscular function: From isolated muscle to voluntary human activity. Mini-symposium presented at the 50<sup>th</sup> annual meeting of the American College of Sports Medicine, San Francisco CA. 2003

3. Heil, D., J.C. Martin, A.S. Gardner, A.R. Coggan. The Science of Cycling: Transforming Research into Practical Applications for Athletes and Coaches Presented at the 53<sup>rd</sup> annual meeting of the American College of Sports Medicine, Denver CO, 2006
4. Modeling Sprint Cycling Performance. Presented to USA Cycling Summit. Colorado Springs, Colorado, Oct. 2006.
5. Myth and Science in Cycling. Presented as a Key Note address at the Serotta International Cycling Institute Symposium and Exposition, Boulder CO, January 2008.
6. Wind tunnel testing without a wind tunnel. Presented at the Serotta International Cycling Institute Symposium and Exposition, Boulder CO, January 2008
7. Martin, D.T., M.L. Mountjoy, J.C. Martin, T. Stellingwerff, and L.M. Burke. Performance Point: What does it take to be Better than the Best? Presented as a Special Event at the annual meeting of the American College of Sports Medicine, San Francisco, CA, 2012
8. Myth and Science in Cycling. Presented as a keynote to Medicine of Cycling Conference, Colorado Springs, Colorado, August 15, 2015. (Note, while the title stays the same as previous presentations this talk is always evolving to include new research.)

#### Symposia and Tutorials, Regional and Local

1. Brown, N.A.T., J. McDaniel, C.J. Davidson, J.C. Martin Cycling: a common task with uncommon capacity to facilitate scientific investigation. Presented at the annual meeting of the American College of Sports Medicine Southwest Conference, Las Vegas NV, 2003.
2. Maximal power during growth and development. Round Rock Independent School District, Round Rock, Texas, 1998.
3. Maximal power across the lifespan. Rocky Mountain Strength & Conditioning Clinic, Salt Lake City, UT 2001
4. Integrated Neuro-Muscular Function: Putting it all together to understand voluntary movement. Presented to the Department of Pharmacology and Toxicology at The University of Utah, Nov. 22, 2004.
5. What I do & how it's handy for you: Have techniques, will collaborate. Presented to a meeting of The University of Utah Center for Contemporary Rehabilitation Research, Education & Practice, March 30, 2005.
6. Integrated neuromuscular function: aspects and applications. Presented to the Department of Integrative Physiology, University of Colorado, Nov 10, 2005.
7. Martin J.C. Biomechanical Determinants of the Metabolic Cost of Producing Submaximal Cycling Power. Presented at the annual meeting of the American College of Sports Medicine Southwest Chapter, San Diego, CA, 2006
8. Integrated Neuromuscular Function: Aspects and Applications. Presented to the Department of Integrative Physiology, University of Utah, Mechanical Engineering Seminar Series, Nov 2, 2006.
9. Cycling Biomechanics. Presented as a guest lecture to University of Utah, Bioengineering course BIOEN 6900, Dr. Bruce MacWilliams Instructor, April 2007.



10. Muscular power across the lifespan. Presented to the University of Utah Center on Aging Seminar Series. Salt Lake City UT, May 2008.
11. Joint Specific Fatigue during Maximal Cycling. Presented to students, faculty, and community at Utah State University, April, 2009.
12. Hull M.L. and J.C. Martin Cycling Biomechanics: Modeling vs. Human Results. Presented at the annual meeting of the American College of Sports Medicine Southwest Chapter, Reno, NV, 2011.
13. Specialized Bicycle Components University Fitters Conference. Myth and Science in Cycle. Key Note Speaker. Morgan Hill California, November 2013.
14. University of Utah Bennion Center. My Passion, My Career, Making Positive Change. Invited presentation Jan 2014.
15. Myth and Science in Cycling. Presented at the Southwest Regional Meeting of the American College of Sports Medicine. October 2016.
16. Sprinting for the Win, Insights from Supply and Demand Modeling of Sprint Cycling. Presented as a keynote at the Mid South Regional meeting of the American Society of Biomechanics, Memphis, February 2018.

## GRANT WRITING AND RELATED ACTIVITIES

### Past Grants

1. University of South Carolina Research and Productive Scholarship grant, 1999-2000. Principal Investigator: Development and validation of a method for measuring eccentric and concentric leg power. Grant amount, \$6000.
2. University of Utah Technology Assisted Curriculum Grant. Principal Investigator. 2001-2002 Development of an on-line biomechanics course. Grant amount \$5000.
3. University of Utah University Research Committee Faculty Research and Creative Grant. Principal Investigator. Alterations in Neuromuscular Function Following Contusion Injury. Grant amount \$5812 over 1 year.
4. National Institutes of Health R-01. Multisite, intrafascicular stimulation for stance. Co-Investigator (Principal Investigator: Richard Normann, Dept of Bioengineering). Total amount **\$1,387,000 over 4 years**.
5. Effects of a nutritional supplement on maximal, submaximal, and perceptual measures following damaging eccentric exercise. Principal Investigator Total amount **\$64,000** over 1 year.
6. Australian Institute of Sport Visiting Scholar Fellowship. The purpose of this fellowship is to perform research related to biomechanics during fatiguing cycling exercise. Total amount \$4500.
7. Edith Cowan University Visiting Scholar Fellowship. The purpose of this fellowship is to perform research on training responses to single leg cycling exercise. Total amount \$5000.
8. University of Utah Technology Assisted Curriculum Center Fellowship. The purpose of this fellowship is to develop an on-line Undergraduate Biomechanics course. Total amount \$5000.

9. Efficacy of a counterweighted single-leg cycle training programme for improving skeletal muscle respiratory capacity. Co-Investigator (Chris R. Abbiss PI). This proposal was submitted to the Faculty of Computing, Health, and Science Small Grant Scheme at Edith Cowan University, Perth, Western Australia. Total amount \$9,920 AU over one year.
10. National Institutes of Health 1S10-RR026565-01 National Center for Research Resources Tandem Instrumented Treadmill for Accurate Assessment of in-vivo Joint Kinetics. Minor user, (Andrew Anderson PI). Total amount \$222,000 over one year
11. Development of an online biomechanics lab course. University of Utah Teaching Committee. Principal Investigator. Total amount \$3000.
12. Adidas Corporation. Do wearable springs improve joint specific power during maximal cycling. Total amount \$ 25,985 over six months. Awarded Sept 2011
13. The University of Utah Technology Commercialization Project: Submitted September 2011. Single leg cycling as an exercise intervention for individuals with diabetes Principal Investigator \$35,000

#### Gifts to the Neuromuscular Function Lab

1. Gatorade Sports Science Institute \$55,000. 2006.
2. Skull Candy. \$15,000. 2015
3. Garmin. \$5000, 2016.

#### Grants, not funded

1. The University of Utah. Incentive Seed Fund Grant: 2000 Effects of Emphysema on Non-Ventilatory Skeletal Muscle Function, Principal Investigator \$15,800
2. Paralyzed Veterans of America: 2001 Maximal Neuromuscular Function and Spinal Cord Injury: Effects of lesion level, muscle volume, and torso stabilization. Principal Investigator \$147,000
3. Sport Court Company: 2001 The effect of horizontal floor compliance on horizontal joint reaction forces during standardized cutting movements \$60,157
4. Christopher Reeve Paralysis Foundation: 2002 Maximal Neuromuscular Function and Spinal Cord Injury: Effects of lesion level, muscle volume, and torso stabilization. Principal Investigator \$117,964
5. The University of Utah University Research Committee: 2002 The Effect of Stimulation Frequency on Rate of Force Development in Skeletal Muscle. Principal Investigator \$3000
6. The University of Utah University Research Committee: 2002 Passive cycling: a novel method for assessing passive muscle activation. Principal Investigator \$5000
7. The University of Utah University Research Committee: 2003 Development and validation of a single leg cycle ergometer. Principal Investigator \$4057
8. The University of Utah Technology Commercialization Grant. 2003 Design and development of a wheelchair with operator selected torso stabilization. Principal Investigator \$57,740

9. The University of Utah University Individual Teaching Grants: 2004 Engaging more students. Principal Investigator \$2,971
10. The University of Utah Incentive Seed Fund Grant: 2004 Alterations in Neuromuscular Function Following Contusion Injury. Principal Investigator \$34,000
11. The University of Utah College of Health Incentive Grant: 2004 Alterations in Neuromuscular Function Following Contusion Injury. Principal Investigator \$4,800
12. National Operating Committee on Safety for Athletic Equipment (NOCSAE) "Functional muscular performance following a contusion injury with and without protective devices" Principal Investigator. \$50,133 over two years.
13. Single leg cycle training for cardiac rehabilitation patients. Submitted as a Letter of Intent for the Synergy Grant Competition at The University of Utah. Principal Investigator. Budget not specified in Letter of Intent.
14. The University of Utah Incentive Seed Fund Grant 2006: Measuring Active Living in People with Spinal Cord Injury. Co- Principal Investigator with Jeffery Rosenbluth of Physical Medicine and Rehabilitation. Submitted Aug. 15 2006 Total budget \$32,000.
15. Does supplementation with branched chain amino acids improve recovery following exhaustive endurance exercise? Principal Investigator. Total amount \$49,000 over one year. This proposal was submitted to, and at the request of, Ajinomoto Company Inc.
16. Effects of pedal width on frontal plane knee moments: Implications for women's health. Principal Investigator. Total amount \$35,000 over one year. This proposal was submitted to, and at the request of, Cervelo Inc.
17. National Institutes of Health R-01 competitive renewal. Multisite, intrafascicular stimulation for gait. Co-Investigator (Principal Investigator: Greg Clark, Dept of Bioengineering). Total amount \$3,695,894 over 4 years.
18. Muscle Regeneration in Duchenne Muscular Dystrophy. Coinvestigator (Principal Investigator Gabrielle Kardon Dept of Human Genetics).
19. The University of Utah. Incentive Seed Fund Grant: Submitted August 2011 Single leg cycling as an exercise intervention for individuals with diabetes Principal Investigator \$30,000
20. Robert Wood Johnson Foundation Pioneer award Pre Proposal. Increasing physical activity in the workplace using Active Desk. Principal Investigator. \$250,000.
21. Concept to Company: Medical Device and Technology Innovation Contest. Active Desk: A Device to Reduce Metabolic Disorders. Principal Investigator \$40,000. In preparation for submission March 2012.
22. Cycling Workstation: A remedy for the Obesogenic Office Environment. Submitted to the National Institutes of Health, National Institute of Diabetes and Kidney Diseases as an R21 in 2013. Total budget \$275,000 over two years. Scored but not funded.
23. Cycling Workstation: A remedy for the Obesogenic Office Environment. Heavily revised to address first round comments and resubmitted to the National Institutes of Health, National Institute of Diabetes and Kidney Diseases as an R21 in 2014. Total budget \$275,000 over two years. Scored but not funded.

24. Cycling Workstation: A remedy for the Obesogenic Office Environment. Submitted to the Center for Disease Control, National Institute of Occupational Safety and Health as an R21 in 2014. Total budget \$275,000 over two years. Scored but not funded.
25. Biomechanical Analyses for Transibial Amputees. Submitted as an OpenSim Pilot Project. Total budget, \$40,000 over one year.
26. Injury Prevention: Improving Rehabilitation Following Anterior Cruciate Ligament Repair with Real-Time Biomechanical Feedback. Submitted the Pac-12 Student Athlete Health and Well-Being Initiative. Total budget \$223,000 over three years.
27. Real time biomechanical feedback to restore symmetry and improve return to play outcomes. Submitted to American Orthopaedic Society for Sports Medicine as a Return to Play Clinical Research Grant, 2020. Total budget \$150,000 for two years.
28. Cycling with power symmetry biofeedback during inpatient rehabilitation to improve gait symmetry post-stroke. Submitted to University of Utah, College of Health Competitive Seed Grant. Co-Investigator (Heather Hays PI). \$27,500
29. Cycling intervention with biofeedback of power symmetry for patients with stroke in an inpatient rehabilitation facility: a pilot study. Submitted to Encompass Health, 2020. Co-Investigator (Heather Hays PI). \$29,400
30. Cycling with power symmetry biofeedback during inpatient rehabilitation to improve gait symmetry post-stroke. Submitted to University of Utah, CCTS Translation and Clinical Studies Pilot Program, 2021. Co-Investigator (Heather Hays PI). \$30,000

## TEACHING ADVISING AND OTHER ASSIGNMENTS

## Instructional Summary

## a. Credit Courses (Chronological listing of courses, term, year, and no. students enrolled).

Year	Semester	Course	Enrollment	
2010	Fall	ESS 3093 Biomechanics	61	
2010	Fall	ESS 3096 Honors Biomechanics	4	
2010	Fall	ESS 6380 Graduate Muscle Physiology	4	
2010	Fall	ESS 6980 Faculty Consult MS	1	
2010	Fall	ESS 7920 Indep Stdy-Research PhD	1	
2011	Spring	ESS 3093 Biomechanics	61	
2011	Spring	ESS 3096 Honors Biomechanics	10	
2011	Fall	ESS 3093 Biomechanics	78	
2011	Fall	ESS 3096 Honors Biomechanics	78*	
2011	Fall	ESS 6390 Graduate Biomechanics	4	
2011	Fall	ESS 6970 Thesis Research MS	1	
2011	Fall	ESS 7920 Indep Stdy-Research PhD	2	
2011	Fall	ESS 7970 Thesis Research-PhD	1	
2012	Spring	ESS 3093 Biomechanics	72	
2012	Spring	ESS 3096 Honors Biomechanics	72*	
2012	Spring	ESS 4999 Honors ThesisProject	2	
2012	Spring	ESS 6951 Indp Stdy Resrch MS	1	
2012	Spring	ESS 7920 Indep Stdy-Research PhD	1	
2012	Fall	ESS 3093 Biomechanics	21	
2012	Fall	ESS 3096 Honors Biomechanics	21*	
2012	Fall	ESS 6380 Graduate Muscle Physiology	7	
2012	Fall	ESS 7920 Indep Stdy-Research PhD	1	
2012	Fall	ESS 7970 Thesis Research-PhD	1	
2013	Spring	ESS 3093 Biomechanics	29	
2013	Spring	ESS 6970 Thesis Research MS	2	
2013	Fall	ESS 3093 Biomechanics	32	
2013	Fall	ESS 6970 Thesis Research MS	2	
2013	Fall	ESS 6390 Graduate Biomechanics	4	
2014	Spring	ESS 3093 Biomechanics	37	
2014	Spring	ESS 3096 Honors Biomechanics	37*	
2014	Spring	ESS 6951 Indp Stdy Resrch MS	2	
2014	Spring	ESS 7920 Indep Stdy-Research PhD	1	
2014	Spring	ESS 7970 Thesis Research PhD	1	
2014	Summer	ESS 4920 Independent Study	1	
2014	Fall	ESS 3093 Biomechanics	43	
2014	Fall	ESS 3096 Honors Biomechanics	2	
2014	Fall	ESS 6380 Graduate Muscle Physiology	19	
2014	Fall	ESS 6951 Indp Stdy Resrch MS	1	

2015	Spring	ESS 3093	Biomechanics	32
2015	Spring	ESS 3096	Honors Biomechanics	32*
2015	Fall	ESS 3096	Biomechanics	30
2015	Fall	ESS 6390	Graduate Biomechanics	4
2016	Spring	ESS 3096	Biomechanics	45
2016	Fall	ESS 3096	Biomechanics	50
2016	Fall	ESS 6383	Graduate Muscle Physiology	8
2017	Spring	ESS 3093	Biomechanics	42
2017	Fall	ESS 6390	Graduate Biomechanics	2
2019	Spring	NUIP 6383	Graduate Muscle Physiology	11
2019	Fall	NUIP 5300	Maximizing Human Performance	17
2020	Spring	NUIP 5300	Maximizing Human Performance	16
2020	Fall	NUIP 5300	Maximizing Human Performance	27
2021	Spring	NUIP 5300	Maximizing Human Performance	23
2021	Spring	NUIP 6383	Graduate Muscle Physiology	8
2021	Fall	NUIP 5300	Maximizing Human Performance	23
2022	Spring	NUIP 5300	Maximizing Human Performance	17

\* Denotes combined 3093 and 3096 evaluations.

b. Non-Credit Courses and Workshops

None

c. Curriculum Development

University of South Carolina

1. Undergraduate Motor Learning: Developed all aspects
2. Graduate Motor Control: Developed all aspects.
3. Graduate Biomechanics: Developed all aspects.
4. Senior Research Seminar: Developed all aspects.

The University of Utah

1. Kinesiology: Revised the existing course to include a rigorous biomechanics component
2. Undergraduate Biomechanics: Used the biomechanics component of the Kinesiology course and additional material to form a stand-alone biomechanics course. Course substantially revised for the Spring 2007 semester.
3. Graduate Biomechanics: Developed all aspects while at University of South Carolina and continue to refine it each time I present it.
4. Muscle Physiology/Muscle Mechanics. Developed all aspects of this course.
5. Training Planning: Developed all aspects of this course.
6. Research Experience course: Developed all aspects of this course.
7. Undergraduate Honors Biomechanics: Developed all aspects of this course.
8. Maximizing Human Performance: Developed all aspects of this course.

d. Graduate Students and Postdoctoral Trainees

Students for whom I am the Major Supervisory Professor

1. John McDaniel, Master of Science completed Spring 2001. Title: Determinants of metabolic cost during submaximal cycling.
2. Takashi Nagai, Master of Science completed Spring 2004. Title: Tibiofemoral joint reaction forces and moments during functional movements.
3. John McDaniel, PhD 2007. Aspects of Dynamic Muscle Contraction
4. Christopher J. Davidson, PhD 2006 Effects of endurance training on calcium release in heart tissue.
5. Robert Horscroft, Master of Science Joint Specific Fatigue during Maximal Cycling.
6. Aleksandar Tomas, Master of Science 2007. Title: Effects of crank length during fatiguing maximal cycling.
7. Lex Gidley, Master of Science 2007. Title: Biomechanical determinants of the metabolic cost of producing submaximal cycling power.
8. Steve Elmer, Masters of Science. Time course of recovery of maximal power, perceived effort, pain, and mood state following muscle damaging exercise.
9. Scott Behjani, Masters of Science. Joint power-velocity relationships during maximal cycling and isokinetic ergometry.
10. Nathan Thomas, Masters of Science. A simple counterweight allows normal biomechanics during single leg cycling.
11. Steve Elmer, PhD 2011. Title Fatigue during multi-joint exercise: biomechanical, central, peripheral, and age-related aspects
12. Skye Marshal, Masters of Science. Muscle Coordination and Joint-Specific Power during Maximal and Submaximal Cycling
13. Chee Hoi Leong PhD 2014. Title The Influence of Non-Circular Chainrings on Maximal and Submaximal Cycling Performance.
14. Laura Wheatley PhD Candidate Exercise and Sport Science.
15. Jenna Link PhD Candidate Nutrition and Integrative Physiology
16. Kyle Whemenan Masters of Science 2014 Exercise Intervention to Improve Glucose Tolerance in Metaboic Syndrome Patients.
17. Andrea Do-Duc Masters Nutrition and Integrative Physiology 2018. Single Leg Training Improves Speed Skating Performance.
18. Ernest Rimer PhD 2019. Exercise and Sport Science.
19. Paul Metele PhD Candidate Rehabilitation Sciences.

Students for whom I serve as a committee member

1. Sally Warner PhD Exercise and Sport Science
2. Eric Stakebake, MP Department of Biology
3. Rebecca Walter PhD completed 2007 at The University of Utah Department of Biology
4. Scott Gardner PhD University of Sydney and Australian Institute of Sport. Completed Spring of 2006.
5. Larry Jones PhD Department of Exercise and Sports Science.
6. Timothy Bolduc, PhD Department of Toxicology and Pharmacology.
7. Lisa Fountain, PhD Department of Bioengineering.
8. Kasey Greenland, PhD Department of Mechanical Engineering.

9. Marissa Chrisman Masters of Science, Department of Mechanical Engineering. 2014
10. Jeremy Morris, PhD, Department of Biology
11. Amanda Cooper, PhD, Department of Biology

Students for whom I served as External PhD Examiner:

Nathan Barry, Aerospace Engineering, Monash University, Melbourne Australia  
Oliver Blake, Biomedical Physiology and Kinesiology, Simon Fraser University,  
Vancouver Canada.  
Thorsten Dahmen, Computer Science, Konstanz University, Konstanz Germany

Undergraduate Research Opportunities Program Fellowships

1. Warren Lake 2004-2005 Maximal Neuromuscular Function: The Effect of Temperature on Performance (Passive Cold)
2. Marshall Meier 2004-2005 Maximal Neuromuscular Function: The Effect of Temperature on Performance (Passive Heat)
3. Trevor Jacobson 2004-2005 Maximal Neuromuscular Function: The Effect of Temperature on Performance (Active Warm up)
4. Elmer, S.J. 2005-2006 Bilateral Deficit and Asymmetry in Short-Term Maximal Cycling
5. Elaine Hunter 2005-2006 Muscular and non-muscular contributions to maximum power cycling in children and adults: Implications for developmental motor control
6. Scott Walker: 2005-2006 Torso Stabilization and Maximal Arm Cranking Power.
7. Kate Hall: 2008-2009 Does Mood State Influence Muscular Power Production?
8. Dean Tanner 2009-2010 Biomechanics of Double- and Single-leg Maximal Cycling
9. Matt Madigan: 2009-2010 Joint Power Absorption During Eccentric Cycling
10. Jeremy Bouwhuis: 2009-2010 Bilateral Deficit During Maximal Cycling
11. Nelson Diamond: 2009 Influence of Duty Cycle on Maximal Power Production
12. Sara Hahn: 2010: Changes in Leg Spring Stiffness following Eccentric Training
13. Brandon Lindquist: 2010 Comparison of Joint-Specific Powers During Double- and Single-leg
14. Amon Neilson 2010 Influence of Torso Stabilization on Maximal Power Production.
15. Justin Grisham 2010 Effect of acute exposure to extremely high intensity exercise on subsequent rating of perceived exertion
16. Liz Toronto: 2010 Changes in Leg Stiffness After High Intensity Cycling
17. Andrew Christensen: 2010 Homologous Muscle Group Activation During Maximal Exercise
18. Paul McAllister: 2010 Eccentric Exercise and Maximal Jumping Power.
19. Mitch Craven: 2010 Functional Changes Following Eccentric Exercise
20. Jerica Johnson: 2011 Effect of Temperature on Maximum Cycling Power
21. Jacqueline Bohn: 2011. Effect of Temperature of Maximum Jumping Power
22. Kyle Wehmanen: 2011 Effect of Temperature on Leg Spring Stiffness
23. Skye Marshall: 2011 Effects of Temperature on Lower Limb Fatigue.
24. Jay Rigby: 2011 Effects of Temperature on Muscle Fatigue.
25. Tucker Levi 2012 A Simple Instruction Increases Relative Contribution of Hip Extension during Submaximal Cycling



26. Tony Church 2012 Increasing Duty Cycle during Single Leg Cycling to Approach In-situ Potential: Can the Leg do what Muscles can do?
27. Jenn Hillam 2012 The Role of Pedaling Rate on Fatigue During Maximal Sprint Cycling
28. Jenna Link 2013 Fatigue during Maximal and Submaximal Sprint Cycling: A Comparison
29. Doug Harper 2013 Accuracy of Commercial Exercise Bikes
30. Nikki Leonard Post 2013 Activation Potentiation in Cycling
31. Lisa Palomaki 2015 A New Method for Determining the Effects of Pedaling Rate on Fatigue during Maximal Cycling
32. David Bennion 2015 Validation of Force Pedals for Bilateral Strength Deficiency Testing
33. Kira Tanghe 2018 Maximized mathematical modeling of work loops to predict changes in maximal power following resistance training.

#### Other Undergraduate Student Research Supervision

1. Megan Touhig presented at 2003 National Conference for Undergraduate Research and at the 2003 annual meeting of the American College of Sports Medicine.
2. Jon-David Ethington presented at 2003 National Conference for Undergraduate Research.
3. Eliza Boyer Undergraduate Research Opportunities Program (UROP) fellowship under the supervision of Maria Newton, all aspects of study done in my lab.

#### SERVICE

Department of Exercise and Sport Science

Graduate Scholarship Selection Committee: 2000-2008

Search Committee to recruit a tenure track assistant professor in exercise physiology 2000-2001

Search Committee to recruit a non-tenure track assistant professor in exercise physiology 2000-2001

Web Site Committee 2002-2005

Curriculum Evaluation Committee 2003-2005

Honors Course Committee 2003-2005

Department of Nutrition and Integrative Physiology

Committee to establish Undergraduate Program for NUIP 2015-2016

Committee to establish Graduate Program for NUIP 2016

Director of Undergraduate Studies for NUIP 2016-2018

College of Health

Chair of College Council and member of Dean's Advisory Council: 2010-2012

College Council 2007-2012

Undergraduate Scholarship Selection Committee: 2002-2006

Steering committee to establish the University of Utah Center for Contemporary Rehabilitation Research, Education and Practice 2004-2005

Leadership in Exercise and Sport Science 2004-2005

At the request of the Associate Dean for Undergraduate Affairs, I have given several lab tours and one lecture to groups of high school student and teachers. 2002-Present

University of Utah

Academic Senate 2016-2019

Academic Senate Executive Committee to establish guidelines for centers, institutes, and bureaus.

Academic Senate Fall 2004- Spring 2005

Utah Sports Research Network Board. Fall 2005-2008

LEAP: Provided a laboratory research experience for LEAP students in Fall 2005, Fall 2013, and Spring 2014.

Seed Grant Reviews: Spring 2010, Spring 2014 (2).

Entrepreneurial Faculty Scholar Program 2014-present

University of South Carolina:

School of Public Health. Committee to Investigate Funding Opportunities in Geriatrics, 1999-2000.

Department of Exercise Science. Undergraduate Curriculum Committee, 1998-2000.

Public Service

1. The translational nature of my research with respect to competitive cycling has resulted in opportunities to provide service to elite sport organizations across the world. In this role, I have provided advice on novel training strategies and performance optimization to sport scientists and coaches as well as World and Olympic Champions. I began this type of service working with the Australian Institute (AIS) of Sport in 2004 and continue to work them to the present. This service commitment varies from year to year but has generally been in the hundreds of hours per year and has involved many trips to and presentations in Australia. My main contacts there are David Martin, PhD, Senior Physiologist [david.martin@ausport.gov.au](mailto:david.martin@ausport.gov.au) and Nick Brown PhD, Deputy Director of Research [nick.brown@ausport.gov.au](mailto:nick.brown@ausport.gov.au). I have also had substantial interaction with the English Institute of Sport (2008-present) working with their cycling and canoe/kayak programs. This service has been less than what I have had with the AIS and is generally in the range of dozens of hours with the exception of 2010 when I spent two weeks working with their staff in England. My main contact there is Scott Gardner, PhD Head of British Canoe/Kayak [sa\\_gardner@msn.com](mailto:sa_gardner@msn.com). I have provided similar service to High Performance Sport New Zealand beginning in 2011; main contacts are Paul Laursen PhD [Paul.Laursen@hpsnz.org.nz](mailto:Paul.Laursen@hpsnz.org.nz) and Angus Ross PhD, [Angus.Ross@hpsnz.org.nz](mailto:Angus.Ross@hpsnz.org.nz), and to Canada's Own the Podium beginning in 2012 (Andrea Wooles MSc [Andrea.Wooles@cyclingcanada.ca](mailto:Andrea.Wooles@cyclingcanada.ca)). I recently attended a three-day training camp with the U.S. National Cycling Team, and am discussing a service role with USA Cycling and

United States Olympic Committee, where I hope to provide service to their program through the next two Olympic cycles. While some of this work has had a paid consulting component, the vast majority was done as volunteer service. This type of service is not typical and does not fit well within any specific category under our Sources of Evidence for Service. However, I believe that it clearly fits into the description of Excellent Performance (Level 4) for Service which states “Shows exemplary service to the profession and the community. Shows international, national, regional, and/or state recognition of a faculty member’s exceptional leadership in service activities.” Finally, by performing this service, I believe I have brought International exposure for the University of Utah in the area of Elite Sport, and thus provided service to the University of Utah.

2. Submitted a grant to USA Track and Field for Coach Roland Tolbert to help fund travel for the members of the Central City Cheetahs, an inner city track and field team. This grant was funded and provided travel assistance for seven team members.

3. Volunteer Sports Science Consultant to Chris Witty, Olympic Champion 2003-2004

Professional Service:

Editorial Board, European Journal of Sport Science 2011-Present

Editorial Board, Journal of Science and Cycling 2012-Present

University of Utah representative for the Southwest Conference of the American College of Sports Medicine’s Network of Professionals 2005-2008

Section Editor for European Journal of Sports Science: The Official Journal of the European College of Sport Science (Biomechanics Section) 2007-2008

AD HOC Reviewer for the following journals:

American Journal of Physiology, Journal of Applied Physiology, Journal of Biomechanics, Journal of Applied Biomechanics, Medicine and Science in Sports and Exercise, Ergonomics, European Journal of Applied Physiology, European Journal of Sport Science  
American Journal of Human Biology, British Journal of Sports Medicine  
Canadian Journal of Applied Physiology, Journal of Human Power,  
Journal of Sports Medicine, Research Quarterly

Professional Memberships

American College of Sports Medicine, 1992-present.

American Physiological Society, 1999-2001

American Society of Biomechanics, 1999-2001.

PREVIOUS PROFESSIONAL EXPERIENCE

Electronic Data Systems: Team EDS, 1989-1999 Director of Sports Science. Conducted physiological, biomechanical, and aerodynamic testing, developed individualized training programs, coached cycling tactics, and optimized rider position and bicycle design. Team members won over 30 National and World Masters Championship titles.

Bicyclist Magazine, 1996-1998 Columnist. Authored a monthly training column for bicycle racing and fitness.

Texas Water Commission, 1984-1992 Professional Engineer. Enforced hazardous waste regulations, educated small business owners on environmental regulations, established technical specifications for underground petroleum storage tanks in the Edwards Aquifer recharge zone, and administered a \$3 million per year state-funded clean-up program for petroleum-contaminated soil and ground water.