



Professor and Chair
Department of Kinesiology
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ACADEMIC APPOINTMENTS

2021 - present	Chair - Department of Kinesiology, University of New Hampshire - Durham
2019 - present	Professor of Exercise Science - Department of Kinesiology, University of New Hampshire - Durham
2017 - 2018	Faculty Fellow for Academic Affairs - Dean's Office, University of New Hampshire - Durham
2013 - 2019	Associate Professor of Exercise Science - Department of Kinesiology, University of New Hampshire - Durham
2007 - 2013	Assistant Professor of Exercise Science - Department of Kinesiology, University of New Hampshire - Durham
2006 - 2007	Adjunct Professor - Department of Molecular Physiology and Biophysics, University of Vermont College of Medicine
2002 - 2007	Assistant Professor of Health Science - Department of Environmental and Health Sciences, Johnson State College

EDUCATION

2004	University of Utah, Exercise and Sport Science (Ph.D)
1998	University of Massachusetts - Amherst, Exercise Science (M.S.)
1996	University of New Hampshire, Kinesiology: Exercise Science (B.S.)

HONORS AND AWARDS

2022	Innovative Research on Aging Bronze Award - Mather Institute
2013	UNH Chase Faculty Scholar
2012	UNH CHHS Teaching Excellence Award
2011	Fellow of the American College of Sports Medicine
2002	Torch Bearer - 2002 Olympic Winter Games

RESEARCH INTERESTS

- Understanding the interplay of neuromuscular, metabolic, and biomechanical function in the limitation of mobility of older adults
- Studying neuromuscular responses to exercise, strength and power asymmetry, passive-elastic muscle-tendon unit properties
- Developing technology for tracking physical activity and movement quality, exercise program delivery, and assistance for independent living

PUBLICATIONS

* Corresponding Author

Refereed Articles

1. F.D. Lutz, Cleary, C.J., Moffatt, H.M., Sullivan, V.E., **LaRoche, D.P.**, Cook, S.B. (2022) Comparison of the H:Q Ratio Between the Dominant and Nondominant Legs of Soccer Players: A Meta-Analysis. *Sports Health*. Online ahead of print, DOI: 10.1177/19417381221095096.
2. Y. Song, Begum, M., Arthanat, S., **LaRoche, D.P.*** (2022) Validation of smartphone accelerometry for the evaluation of sit-to-stand performance and lower-extremity function in older adults. *Journal of Aging and Physical Activity*. 30(1):3-11.
3. T.J. Quinn, Dempsey, S.L., **LaRoche, D.P.**, Mackenzie, A.M., Cook, S.B. (2021) Step Frequency Training Improves Running Economy in Well-Trained Female Runners. *Journal of Strength and Conditioning Research*. 35(9):2511-2517.
4. F.J. Gesel, Morenz, E.K., Cleary, C.J., **LaRoche, D.P.*** (2020) Effect of static and ballistic stretching on muscle-tendon unit stiffness, work absorption, strength, power, and countermovement vertical jump performance. *Journal of Strength and Conditioning Research*. Online ahead of print, DOI: 10.1519/JSC.0000000000003894.
5. R. McGrath, Tomkinson, G.R., **LaRoche, D.P.**, Vincent, B.M., Bond, C.W., Hackney, K.J. (2020) Handgrip strength asymmetry and weakness may accelerate time to mortality in aging Americans. *Journal of the American Medical Directors Association*. 21(12):2003-2007.
6. S. Arthanat, Begum, M., Gu, T., **LaRoche, D.**, Xu, D., Zhang, N. (2020) Caregiver perspectives on a smart home-based socially assistive robot for individuals with Alzheimer's disease and related dementia. *Disability and Rehabilitation: Assistive Technology*. 15(7):789-798.
7. V.A. Bode, Croce, R.V., Quinn, T.J., **LaRoche, D.P.*** (2020) Influence of excess weight on lower-extremity vertical stiffness, muscle activation, and metabolic cost of walking. *European Journal of Sport Science*. 20(4):477-485.

8. L.F. Crozara, Marques, N.R., **LaRoche, D.P.**, Pereira, A.J., Silva, F.C.C., Flores, R.C., Payão, S.L.M. (2019) Hip extension power and abduction power asymmetry as independent predictors of walking speed in unilateral lower limb amputees. *Gait & Posture*. 70:383-388.
9. D.H. Spinoso, Marques, N.R., **LaRoche, D.P.**, Hallal, C.Z., Karuka, A.H., Milanezi, F.C., Gonçalves, M. (2019) Hip, knee, and ankle functional demand during habitual and fast pace walking in younger and older women. *Journal of Aging and Physical Activity*. 27(2):242-251.
10. **D.P. LaRoche***, Melanson, E.L., Baumgartner, M.P., Bozzuto, B.M., Libby, V.M., Marshall, B.N. (2018) Physiological determinants of walking effort in older adults: Should they be targets for physical activity intervention? *GeroScience*. 40:305-315.
11. M.H. Morcelli, **LaRoche, D.P.**, Crozara, L.F., Marques, N.R., Hallal, C.Z., Gonçalves, M., Navega, M.T. (2018) Discriminatory ability of lower extremity peak torque and rate of torque development in the identification of older women with slow gait speed. *Journal of Applied Biomechanics*. 34(4):270-277
12. S.B. Cook, **LaRoche, D.P.**, Villa, M.R., Barile, H., Manini, T.M. (2017) Blood flow restricted resistance training in older adults at risk of mobility limitations. *Experimental Gerontology*. 99:138-145.
13. **D.P. LaRoche***, Villa, M.R., Bond, C.W., Cook, S.B. (2017) Knee extensor power asymmetry is unrelated to functional mobility of older adults. *Experimental Gerontology*. 98:54-61.
14. **D.P. LaRoche*** (2017) Plantarflexor passive-elastic properties related to BMI and walking performance in older women. *Gait & Posture*. 53:55-60.
15. Bond, C.W., Cook, S.B., Swartz, E.E., **LaRoche, D.P.*** (2017) Asymmetry of lower-extremity force and muscle activation during knee extension and functional tasks. *Muscle & Nerve*. 56(3):495–504.
16. **D. P. LaRoche***, Marques, N.R, Cook, S.B., Masley, E.A. Morcelli, M.H. (2016) Augmenting strength-to-weight ratio by body weight unloading affects walking performance equally in obese and nonobese older adults. *Age*. 38(1):21.
17. M.H. Morcelli, **LaRoche, D.P.**, Crozara, L.F., Marques, N.R., Hallal, C.Z., Rossi, D.M., Gonçalves, M., Navega, M.T. (2016) Neuromuscular performance in the hip joint of elderly fallers and non-fallers. *Aging Clinical and Experimental Research*. 28(3):443-50.
18. **D.P. LaRoche***, Marques, N.R., Shumila, H.N., Logan, C.R., St. Laurent, R.M., Gonçalves, M. (2015) Excess body weight influences gait and energy cost of walking in older adults. *Medicine & Science in Sports & Exercise*. 47(5):1017-1025.

19. L.F. Crozara, Castro, A., de Almeida Neto, A.F., **LaRoche, D.P.**, Cardozo, A.C., Gonçalves, M. (2015) Utility of electromyographic fatigue threshold during treadmill running. *Muscle and Nerve*. 52(6):1030-9.
20. S.B. Cook, **LaRoche, D.P.**, Swartz, E.E., Hammond, P.R., King, M.A. (2014) A novel sensorimotor movement and walking intervention to improve balance and gait in women. *Complementary Therapies in Clinical Practice*. 20(4):311-316.
21. **D.P. LaRoche***, Greenleaf, B.L., Croce, R.V., McGaughy, J.A. (2014) Interaction of age, cognitive function, and gait performance in 50-80-year-olds. *Age*. 36(4):9693.
22. M.H. Morcelli, Crozara, L.F., Rossi, D.M., **LaRoche, D.P.**, Marques, N.R., Hallal, C.Z., Castro, A., Cardozo, A.C., Gonçalves, M., Navega, M.T. (2014) Hip muscles strength and activation in older fallers and non-fallers. *Isokinetics and Exercise Science*. 22(3):191-196.
23. D.M. Rossi, Morcelli, M.H., Marques, N.R., Hallal, C.Z., Gonçalves, M., **LaRoche, D.P.**, Navega, M.T. (2014) Antagonist coactivation of trunk stabilizer muscles during Pilates exercises. *Journal of Bodywork and Movement Therapies*. 18:34-41.
24. Castro, A., **LaRoche, D. P.** Fraga, C. H. W. Gonçalves, M. (2013) Relationship between running intensity, muscle activation, and stride kinematics during an incremental protocol. *Science & Sports*. 28:e85-e92.
25. N.J. Crystal, Townson, D., Cook, S.B., **LaRoche, D.P.*** (2013) Effect of cryotherapy on muscle damage and inflammation following a bout of damaging exercise. *European Journal of Applied Physiology*. 113(10):2577-86.
26. K.E. LaBarbera, Murphy, B.G. **LaRoche, D.P.** Cook, S.C. (2013) Sex differences in blood flow restricted isotonic knee extensions to fatigue. *Journal of Sports Medicine and Physical Fitness*. 53(4):444-452.
27. N.R Marques, **LaRoche, D.P.**, Hallal, C.Z, Crozara, L.F., Morcelli, M.H., Karuka, A.H., Navega, M.T., Gonçalves, M. (2013) Association between energy cost of walking, muscle activation, and biomechanical parameters in older female fallers and non-fallers. *Clinical Biomechanics*. 28:330-336.
28. **D.P. LaRoche***, Cook, S.B., Mackala, K. (2012) Strength asymmetry increases gait asymmetry and variability in older women. *Medicine & Science in Sports & Exercise*. 44(11):2172-2181, 2012.
29. C.S. Correa, **LaRoche, D.P.**, Cadore, E.L., Reischak-Oliveira, A., Bottaro, M., Krueel, L.F., Tartaruga, M.P., Radaelli, R., Wilhelm, E.N., Lacerda, F.C., Gaya, A.R., Pinto, R.S. (2012) 3 different types of strength training in older women. *International Journal of Sports Medicine*. 33:962-969.
30. **D.P. LaRoche***, Kralian, R.J. Millett, E.D. (2011) Fat mass limits lower-extremity relative strength and maximal walking performance in older women. *Journal of Electromyography and Kinesiology*. 21(5):754-761.

31. **D.P. LaRoche***, Millett, E.D., Kralian, R.J. (2011) Lower-limb strength relates to ground reaction forces and walking performance in older women. *Gait & Posture*. 33(4): 668-672.
32. J. Francis, T.J. Quinn, M. Amann, **LaRoche, D.P.*** (2010) Defining intensity domains from the end power of a 3-min all-out cycling test. *Medicine & Science in Sports & Exercise*. 42(9):1769-1775.
33. **D.P. LaRoche***, Cremin, K.A., Greenleaf, B. Croce, R.V. (2010) Rapid torque development in older female fallers and nonfallers: a comparison across lower-extremity muscles. *Journal of Electromyography and Kinesiology*. 20(3): 482-488.
34. **D.P. LaRoche***, M. Amann, K.W. Rundell. (2010) Grade influences blood lactate kinetics during cross-country skiing. *Journal of Strength and Conditioning Research*. 24(1):120-127.
35. **D.P. LaRoche*** (2009) Initial neuromuscular performance in older women influences response to explosive resistance training. *Isokinetics and Exercise Science*. 17(4): 197-205.
36. **D.P. LaRoche***, Roy, S, Knight, C.A., Dickie, J. (2008) Elderly women have blunted response to resistance training despite reduced antagonist coactivation. *Medicine & Science in Sports & Exercise*. 40:1660–1668.
37. **D.P. LaRoche***, Lussier, M., Roy, S. (2008) Chronic stretching and voluntary muscle force. *Journal of Strength and Conditioning Research*. 22:589-596.
38. **D.P. LaRoche***, Knight, C.A., Dickie, J., Lussier, M., Roy, S. (2007) Explosive force production and fractionated reaction time in elderly low and high active women. *Medicine & Science in Sports & Exercise*. 39:1659-1665.
39. **D.P. LaRoche***, Connolly, D. (2006) Effects of stretching on passive muscle tension and response to eccentric exercise. *American Journal of Sports Medicine*. 34:1000-1007.

Refereed Conference Proceedings

1. P. Gesel, **LaRoche, D.**, Arthanat, S., Begum, M. (2021) Learning to optimize control policies and evaluate reproduction performance from human demonstrations. *International Conference on Intelligent Robots and Systems (IROS)*, 7800-7806. IEEE/RSJ.
2. Gu, T., Begum, M., Zhang, N., Xu, D., Arthanat, S., **LaRoche, D.** (2020) An Adaptive Software Framework for Dementia-care Robots. *International Conference on Automated Planning and Scheduling (ICAPS)*
3. P. Gesel, Mikulis-Borsoi, F., **LaRoche, D.P.**, Arthanat, S., Begum, M. (2020) Learning optimized human motion via phase space analysis. In 2020 *International Conference on Intelligent Robots and Systems (IROS)*. 8329-8335. IEEE.

4. P. Gesel, Begum, M., **LaRoche, D.P.** (2019) Learning motion trajectories from phase space analysis of the demonstration. In *2019 International Conference on Robotics and Automation (ICRA)*. 7055-7061. IEEE.

Refereed Articles in Press

None at this time

Refereed Articles in Review and Revision

1. **D.P. LaRoche***, Begum, M., Gesel, P., Arthanat, S., Bandera, V.M., Gesel, F.J., Girouard, L.M., Surman, B.M. Quantifying kinematic fidelity of demonstrated therapeutic shoulder exercises between therapist and patient.
2. S. Arthanat, **LaRoche, D.P.**, Wilcox, J. Smart home automation technology to support caring of individuals with Alzheimer's disease and related dementia: An early intervention framework.

Articles in Preparation

1. **D.P. LaRoche***, Gregory, V.A., Baumgartner, M., Libby, V., Bozzuto, B., Marshall, B. Lower-extremity vertical stiffness and metabolic cost of walking differ between young and older adults.
2. P.Y. Joshi, Cook, S.B., Brian, M.S., **LaRoche, D.P.*** Effect of muscle activation on gait variability in older adults.
3. M.L. Rauseo, **LaRoche, D.P.**, Fearheller, D., Cook, S.B. Acute effect of dynamic and gluteal resistance exercise warm-up protocols on lower extremity jump landing mechanics in college-aged females.
4. V.M. Bandera, **LaRoche, D.P.*** Influence of lower extremity strength on chair rise functional demand in older female cancer survivors.

Other Publications

1. **D.P. LaRoche*** (2001) Hydration for outdoor winter enthusiasts. *American Ski Coach*. 20:3, 15-16.
 2. **D.P. LaRoche*** (2001) Physiological contributors to cross-country ski racing performance. *American Ski Coach*. 20:3, 17-18.
- D.P. LaRoche*** (2002) Lactate and cross-country ski performance. *American Ski Coach*. 20:4, 28-29.

PUBLISHED ABSTRACTS PRESENTED AT PROFESSIONAL MEETINGS

1. **D.P. LaRoche**, Begum, M., Gesel, P., Arthanat, S., Bandera, V.M., Gesel, F.J., Girouard, L.M., Mayer, S.M., Poirier, C.L., Surman, B.M. Quantifying kinematic fidelity of demonstrated therapeutic shoulder exercises between therapist and patient. American College of Sports Medicine, Annual Meeting, May 2020, San Francisco, CA (Conference cancelled due to COVID-19). *Med. Sci. Sports Exerc.* 52(7S):273-274
2. V.M. Bandera, **LaRoche, D.P.** Influence of lower extremity strength on chair rise functional demand in older female cancer survivors. American College of Sports Medicine, Annual Meeting, May 2019, Orlando, FL. *Med. Sci. Sports Exerc.* 51:6, 690.
3. **D. P. LaRoche**, Gregory, V. A., Baumgartner, M. P., Bozzuto, B. M., Libby, V. M., Marshall, B. N. Impact of lower-extremity gait mechanics on energy cost of walking in younger and older adults. American College of Sports Medicine, Annual Meeting, May 2018, Minneapolis, MN. *Med. Sci. Sports Exerc.* 50:5S, 10-11.
4. S.B. Cook, **LaRoche, D. P.**, Manini, T. M. Multiple strength assessments to evaluate adaptations to high-load and low-load blood flow restricted exercise. American College of Sports Medicine, Annual Meeting, May 2018, Minneapolis, MN. *Med. Sci. Sports Exerc.* 50:5S, 243.
5. **D.P. LaRoche**, Melanson, E.L., Baumgartner, M.P., Bozzuto, B.M., Libby, V.M., Marshall, B.N. Physical activity and sedentary behavior of older adults related to physiological metrics of walking effort. American College of Sports Medicine, Annual Meeting, May 2017, Denver, CO. *Med. Sci. Sports Exerc.* 49:5S, 3.
6. V.A. Gregory, Croce, R.V., Quinn, T.J., **LaRoche, D.P.** Effect of excess weight on lower-extremity vertical stiffness, muscle activation, and metabolic cost of walking. American College of Sports Medicine, Annual Meeting, May 2017, Denver, CO. *Med. Sci. Sports Exerc.* 49:5S, 132.
7. **D.P. LaRoche** Low knee extensor strength limits walking functional reserve capacity of older adults. American College of Sports Medicine, Annual Meeting, May 2016, Boston, MA. *Med. Sci. Sports Exerc.* 48:5S1, 684.
8. S.B. Cook, Villa, M.R., **LaRoche, D.P.**, Manini, T.M. Effects of resistance training on strength, physical function and quality of life in older adults. American College of Sports Medicine, Annual Meeting, May 2016, Boston, MA. *Med. Sci. Sports Exerc.* 48:5S1, 125.
9. C.W. Bond, Cook, S.B., Villa, M.R., **LaRoche, D.P.** (2015) Does the weaker limb limit physical performance of older adults? American College of Sports Medicine, Annual Meeting, May 2015, San Diego, CA. *Med. Sci. Sports Exerc.* 47:5S, 23-27.
10. S.B. Cook, **LaRoche, D.P.**, Villa, M.R., Barile, H., Manini, T.M. (2015) Short-term effects of blood flow restricted resistance training in older adults at risk of mobility limitations. American College of Sports Medicine, Annual Meeting, May 2015, San Diego, CA. *Med. Sci. Sports Exerc.* 47:5S, 514-518.

11. S.A. Gagnon, Villa, M.R., **LaRoche, D.P.**, Cook, S.B. (2015) The relationship of quadriceps power and physical function in older adults. American College of Sports Medicine, Annual Meeting, May 2015, San Diego, CA. *Med. Sci. Sports Exerc.* 47:5S, 587-589.
12. **D.P. LaRoche**, Greeley, H., Marques, N.R., Masley, E.A., Cook, S.B., Quinn, T.J., Swartz, E.E. (2015) An unobtrusive vitality monitor. American College of Sports Medicine, Annual Meeting, May 2015, San Diego, CA. *Med. Sci. Sports Exerc.* 47:5S, 260-262.
13. M.R. Villa, Croce, R.V., **LaRoche, D.P.**, Cook, S.B. (2015) The effects of blood low restriction on neuromuscular function and fatigue during leg press exercise. American College of Sports Medicine, Annual Meeting, May 2015, San Diego, CA. *Med. Sci. Sports Exerc.* 47:5S, 442-443.
14. **D.P. LaRoche**. Excess body weight affects viscoelastic properties of triceps surae in older women. (2015) Experimental Biology meeting, April 2015, Boston, MA. *J Fed Am Soc Exp Biol*, 29:9, 815.3.
15. S.B. Cook, Meyer, A.R., **LaRoche, D.P.**, Manini, T.M. (2015) Effect of resistance training on intermuscular adipose tissue in older adults at risk of mobility limitation. Experimental Biology meeting, April 2015, Boston, MA. *J Fed Am Soc Exp Biol*, 29:1, 677.16.
16. **D.P. LaRoche**, Greeley, H., Marques, N.R., Masley, E.A., Cook, S.B., Quinn, T.J. (2014) An unobtrusive vitality monitor. New England Chapter of the American College of Sports Medicine meeting, November 2014, Providence, RI
17. **D.P. LaRoche**, Marques, N.R., Masley, E.A., Morcelli-Gotardo, M.H., Cook, S.B. (2014) Increasing strength-to-weight ratio changes gait timing but not walking speed in older adults. American College of Sports Medicine, Annual Meeting, May 2014, Orlando, FL. *Med. Sci. Sports Exerc.* 46:5S, 826-830.
18. M.R. Villa, Allen, M., Manini, T.M., **LaRoche, D.P.**, Cook, S.B. (2014) The influence of strength and aerobic capacity on walk performance in older adults. American College of Sports Medicine, Annual Meeting, May 2014, Orlando, FL. *Med. Sci. Sports Exerc.* 46:5S, 442-444.
19. N.R. Marques, Masley, E.A., **LaRoche, D.P.** (2013) Increasing strength-to-weight ratio by body weight unloading normalizes gait biomechanics in older adults. XXIV Congress of the International Society of Biomechanics, August 2013, Natal, Rio Grande do Norte, Brazil.
20. **D.P. LaRoche**, Shumila, H.N., Logan, C.R., Marques, N.R. (2013) Excess body weight influences gait and energy cost of walking in older adults. American College of Sports Medicine, Annual Meeting, June 2013, Indianapolis, IN. *Med. Sci. Sports Exerc.* 45:5S, 308.

21. S.B. Cook, **LaRoche, D.P.**, Swartz, E.E., Hammond, P.R., King, M.A. (2013) A novel comprehensive movement awareness program to improve balance and gait in women. American College of Sports Medicine, Annual Meeting, June 2013, Indianapolis, IN. *Med. Sci. Sports Exerc.* 45:5S, 286-291.
22. C.R. Slate, Cook, S.B., Swartz, E.E., Hammond, P.R., King, M.A., **LaRoche, D.P.** (2013) Static balance testing predicts gait performance in middle-aged and older women. American College of Sports Medicine, Annual Meeting, June 2013, Indianapolis, IN. *Med. Sci. Sports Exerc.* 45:5S, 286-291.
23. C.Z. Hallal, Marques, N.R., **LaRoche, D.P.**, Spinoso, D.H., Crozara, L.F., Morcelli, M.H., Gonçalves, M. (2012) Analysis of different methods to identify older female fallers using temporal kinematic gait variability. American Society of Biomechanics, Annual Meeting, August 2012, Gainesville, FL.
24. N.R. Marques, Hallal, C.Z., **LaRoche, D.P.**, Crozara, L.F., Morcelli, M.H., Karuka, A.H., Navega, M.T., Gonçalves, M. (2012) Association between strength, kinematics, and the energy cost of walking in older female fallers and non-fallers. American Society of Biomechanics, Annual Meeting, August 2012, Gainesville, FL.
25. **D.P. LaRoche**, Cook, S.B, Greeley, H., Mackala, K., Quinn, T.J. (2012) Strength asymmetry increases gait asymmetry and variability in older women. American College of Sports Medicine, Annual Meeting, June 2012, San Francisco, CA. *Med. Sci. Sports Exerc.* 44:5, S283.
26. **D.P. LaRoche**, Kralian R.J., Millett, E.D. (2012) Poor relative strength impairs maximal walking performance in overweight older women. American College of Sports Medicine, Annual Meeting, June 2011, Denver, CO. *Med. Sci. Sports Exerc.* 43:5, S649.
27. T.J. Quinn, Dempsey, S.L., Hourihan, S.E, **LaRoche, D.P.**, MacKenzie, A.M. (2011) The effect of increasing step frequency on running economy in female runners. American College of Sports Medicine, Annual Meeting, June 2011, Denver, CO. *Med. Sci. Sports Exerc.* 43:5, S73.
28. K.L. Litka, **LaRoche, D.P.**, Cook, S.B., Quinn, T.J. (2011) Effects of seat tube angle manipulation on cardiorespiratory response and frontal area in female cyclists. American College of Sports Medicine, Annual Meeting, June 2011, Denver, CO. *Med. Sci. Sports Exerc.* 43:5, S62.
29. **D.P. LaRoche**, Millett, E.D., Kralian R.J. (2011) Low strength is related to diminished ground reaction forces and walking performance in older women. Gait & Clinical Movement Analysis Society, Annual Meeting, April 2011, Bethesda, MD.
30. H.N. Shumila & **D.P. LaRoche**. (2010) Influence of obesity on gait and metabolic cost of walking in older adults. New England Chapter of the American College of Sports Medicine meeting, November 2010, Providence, RI.

31. R.J. Kralian, Millett, E.D., **LaRoche, D.P.** (2009) Visual acuity, balance control and the automaticity of walking in older women. New England Chapter of the American College of Sports Medicine meeting, November 2009, Providence, RI. (*Student Investigator Award Winner*)
32. E.D. Millett, Kralian, R.J., **D.P. LaRoche.** (2009) Ankle strength and stiffness predict range of motion during walking in older adults. New England Chapter of the American College of Sports Medicine meeting, November 2009, Providence, RI.
33. E.Gattie, Decoster, L.C., Heon, M., **LaRoche, D.P.** (2009) Validity and reliability of the monitored rehabilitation functional squat proprioception test component. National Athletic Training Association National Meeting. June 2009, San Antonio, TX. *Journal of Athletic Training.* 44:3, S112.
34. **D.P. LaRoche.** (2009) Initial neuromuscular performance influences potential gains in muscle power in older women. American College of Sports Medicine, National Meeting, May 2009, Seattle, WA. *Med. Sci. Sports Exerc.* 41:5, S13.
35. E.E. Swartz, Hernandez, A., **LaRoche, D.P.**, Decoster, L.C. (2009) A gender comparison of lower extremity landing biomechanics utilizing different tasks. American College of Sports Medicine, National Meeting, May 2009, Seattle, WA. *Med. Sci. Sports Exerc.* 41:5, S234.
36. J. Francis, Quinn, T.J., Amann, M., **LaRoche, D.P.** (2009) Estimating lactate threshold power from the end power of a 3-min all-out cycling test. American College of Sports Medicine, National Meeting, May 2009, Seattle, WA. *Med. Sci. Sports Exerc.* 41:5, S392.
37. **D.P. LaRoche**, Roy, S., Knight, C.A., Dickie, J. (2008) Old have blunted response to power training despite reduced antagonist co-activation. American College of Sports Medicine, National Meeting, May 2008, Indianapolis, IN. *Med. Sci. Sports Exerc.* 40:5, S87.
38. **D. P. LaRoche**, Knight, C.A., Dickie, J., Roy, S. (2007) Elderly women have reduced capacity to increase muscle power following resistance training despite reduced antagonist co-activation. New England Chapter of the American College of Sports Medicine meeting, November 2007, Providence, RI
39. **D.P. LaRoche**, Knight, C.A., Dickie, J., Lussier, M., Roy, S. (2007) Explosive force production and fractionated reaction time in elderly low and high active women. American College of Sports Medicine, National Meeting, June 2007, New Orleans, LA. *Med. Sci. Sports Exerc.* 39:5, S105.
40. **D.P. LaRoche**, Lussier, M., Roy, S. (2006) Effects of four weeks of stretching on active torque development. American College of Sports Medicine, National Meeting, June 2006, Denver, CO. *Med. Sci. Sports Exerc.* 38:5, S259.
41. **D.P. LaRoche.** (2005) Response to eccentric exercise following four weeks of flexibility training. American College of Sports Medicine, National Meeting, June 2005, Nashville, TN. *Med. Sci. Sports Exerc.* 37:5, S466.

42. **D.P. LaRoche**, Bilodeau, L., Crowe, J., Lynch, S. (2004) Viscoelastic response of skeletal muscle to four days of flexibility training. American College of Sports Medicine, National Meeting, June 2004, Indianapolis, IN. *Med. Sci. Sports Exerc.* 36:5, S345.
43. **D.P. LaRoche**. (2003) Hematological indices associated with cross-country ski speed at altitude. American College of Sports Medicine, National Meeting, May 2003, San Francisco, CA. *Med. Sci. Sports Exerc.* 35:5, S364.
44. **D.P. LaRoche** & M.R. Hill. (2002) Effectiveness of 10-day altitude camp on red blood cell indices. 6th International Olympic Committee - Congress on Science and Sport, June 2002, St. Louis, MO. *Med. Sci. Sports Exerc.* 34:5, 48.
45. **D.P. LaRoche**, Subudhi, A.W., Wong, A., Walker, J. (2001) Antioxidant status of U.S. biathletes during altitude training. American College of Sports Medicine, National Meeting, May 2001, Baltimore, MD. *Med. Sci. Sports Exerc.* 33:5, S71.
46. **D. P. LaRoche**, Im, J., Freedson, P.S., Rundell, K.W. (2000) Relationship between laboratory measures and 5-kilometer ski skating performance. American College of Sports Medicine, National Meeting, May 2000, Seattle, WA. *Med. Sci. Sports Exerc.* 32:5, S216.
47. **D.P. LaRoche**, Im, J., Freedson, P.S., Rundell, K.W. (1999) The effects of grade change on the lactate profile during skate roller-skiing. American College of Sports Medicine, National Meeting, May 1999, Orlando, FL. *Med. Sci. Sports Exerc.* 31:5, S212.
48. J.Im, **LaRoche, D.P**, Rundell, K.W. (1999) Muscle oxygen desaturation is related to whole body VO₂ during cross-country ski skating. American College of Sports Medicine, National Meeting, May 1999, Orlando, FL. *Med. Sci. Sports Exerc.* 31:5, S98.
49. **D.P. LaRoche**, Debold, E.P., Sirard, J.R., Hendelman, D.L., Freedson, P.S. (1998) Prediction of oxygen consumption during treadmill exercise in children and adolescents. American College of Sports Medicine, National Meeting, May 1998, Denver, CO. *Med. Sci. Sports Exerc.* 30:5, S152.
50. G. Kamen, Knight, C.A., **LaRoche, D.P.**, Asermely, D.G. (1998) Resistance training increases vastus lateralis motor unit firing rates in young and old adults. American College of Sports Medicine, National Meeting, May 1998, Denver, CO. *Med. Sci. Sports Exerc.* 30:5, S337.
51. G. Kamen, Knight, C.A., **LaRoche, D.P.**, Assermely, D.G. (1997) Maximal firing rates of vastus lateralis motor units in young and old adults. American College of Sports Medicine, New England Chapter Annual Meeting, September 1997. Providence, RI.

RESEARCH PRESENTATIONS

- 2021 Robots as Caregivers: Machine Learning Meets Therapeutic Service Delivery. New England Chapter of the American College of Sports Medicine – Past President’s Lecture, October 2021, Providence, RI.
- 2018 Gait Variability as an Objective Marker of Fall Risk in Older Adults. New Hampshire Musculoskeletal Institute 25th Annual Symposium, September 2018, Manchester, NH.
- 2018 Physiological Metrics of Walking Effort Related to Physical Activity and Sedentary Behavior of Older Adults. New Hampshire Musculoskeletal Institute 25th Annual Symposium, September 2018, Manchester, NH.
- 2018 Exercise prescription for the aging athlete: Balancing performance and health. New Hampshire Musculoskeletal Institute – Hot Topics in Sports Medicine for Primary Care Providers, May 2018, Manchester, NH.
- 2017 Physical activity and sedentary behavior of older adults is related to physiological metrics of walking effort. Seminar - Programa de Pós Graduação em Fisioterapia, Universidade do Sagrado Coração, October 2017, SP, Brazil (*via videoconference*).
- 2016 Walking difficulty in older adults: Interaction of neuromuscular, metabolic and biomechanical factors. Universidade Estadual Paulista, Marília, March 2016, SP, Brazil.
- 2016 Augmenting strength-to-weight ratio by body weight unloading affects walking performance equally in obese and nonobese older adults. Annual Research Conference - Centro de Reabilitação Lucy Montoro, Marília, March 2016, SP, Brazil.
- 2016 Walking difficulty in older adults: Interaction of neuromuscular, metabolic and biomechanical factors. University of Massachusetts – Amherst, February 2016, Amherst, MA.
- 2015 Walking difficulty in older adults: Interaction of neuromuscular, metabolic and biomechanical factors. New England Chapter meeting of the American College of Sports Medicine, October 2015, Providence, RI.
- 2015 Reducing Walking Effort: A new approach toward improving mobility and physical activity in older adults. Falls Prevention Conference: Keeping Older Adults Moving. June, 2015, Bedford, NH.
- 2014 Effect of cryotherapy on muscle recovery and inflammation. Annual Conference of Physical Therapy. Universidade Estadual Paulista, Marília, November 2014, SP, Brazil (*via videoconference*).
- 2013 Strength and mobility assessment in older adults for the prevention of disabilities and falls. National Athletic Training Association annual meeting, June 2013, Las Vegas, NV.

- 2013 Excess fat mass and strength asymmetry impair walking performance in older women. Agricultural Experiment Station *NE1039 Changing the Health Trajectory for Older Adults through Effective Diet and Activity Modifications* annual meeting. June 2013, Portsmouth, NH.
- 2012 Knee extensor strength asymmetry leads to gait asymmetry and variability in older adults. Universidade Estadual Paulista, January 2012, Rio Claro, São Paulo, Brazil.
- 2012 Blood lactate as a marker of metabolic acidosis and endurance performance. New England Chapter meeting of the American College of Sports Medicine, November 2012, Providence, RI.
- 2012 Effects of fat mass, strength and gait asymmetry on walking performance in older adults. University of Massachusetts, October 2012, Amherst, MA.
- 2012 Excess fat mass impairs strength and mobility in older adults. New Hampshire Dietetic Association Meeting, October 2012, Rochester, NH.
- 2010 Packing it On – The burden of excess fat mass in the older adult. New England Chapter meeting of the American College of Sports Medicine, November 2010, Providence, RI.
- 2008 Balance and Falls – Part I: Why do aging people fall...? New Hampshire Musculoskeletal Institute Fall Symposium, September 2008, Manchester, NH
- 2007 Role of stretching in athletic performance and injury risk, a paradigm shift. Vermont Association for Health, Physical Education, Recreation and Dance Conference, November 2007, Killington, VT
- 2006 Aging, Physical Activity & Muscle Function. Vermont Genetics Network Retreat, August 2006, Burlington, VT
- 2005 Lifetime Physical Activity and Muscle Power Development in Older Women. Vermont Genetics Network Retreat, August 2005, Burlington, VT
- 2004 Viscoelastic Properties of Skeletal Muscle. Vermont Genetics Network Retreat, August 2004, Burlington, VT
- 2001 Physical Performance Testing: A Measure of Fitness and Indication of Olympic Winter Sport Potential. National Science Teachers Association Convention, October 2001, Salt Lake City, UT

COMMUNITY PRESENTATIONS

- 2019 Super Stellar Friday: Robot Therapy. McAuliffe-Shepard Discovery Center, March 2019, Concord, NH
- 2015 Reducing Walking Effort: A new approach toward improving mobility and physical activity in older adults. Riverwoods Assisted Living Community, June 2015, Exeter, NH

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- 2014 Exercise is medicine. Exeter Hospital Grand Rounds. January 2014, Exeter, NH.
- 2012 Effects of fat mass, strength and gait asymmetry on walking performance in older adults. New Hampshire Panel on Falls Prevention, August 2012, Concord, NH
- 2012 Influence of weight gain on mobility in older adults. Riverwoods Assisted Living Community, February 2012, Exeter, NH
- 2011 Changing Aging in the Granite State: Living Well. Guest speaker for television series produced by New Hampshire Public Television in cooperation with American Association of Retired Persons (AARP). December 2011, Durham, NH.
- 2011 Role of muscle performance in fall prevention. Riverwoods Assisted Living Community, March 2011, Exeter, NH
- 2010 Role of stretching in athletic performance and injury risk, a paradigm shift. Northeast Rehabilitation Hospital, February 2010, Salem, NH
- 2009 Role of muscle performance in fall prevention. Northeast Rehabilitation Hospital, August 2009, Salem, NH
- 2009 Female Athlete Triad. Bennington College Wellness Week, April 2009, Bennington, VT
- 2009 Role of muscle performance in fall prevention. New Hampshire Panel on Falls Prevention, March 2009, Concord, NH
- 2008 Strengthening to maintain independence. Pittsfield Area Senior Center, June 2008, Pittsfield, NH
- 2007 Laboratory vs. field measurement of the blood lactate threshold. New England Nordic Skiing Association Coaches' Conference, November 2007, Gorham, NH
- 2003 Wellness Beyond College. Student Athlete Advisory Committee Student-Athlete Night. Johnson State College, April 2003, Johnson, VT
- 2002 Role of Activity in the Control of Type II diabetes for Native Americans. Indian Walk-in Center, May 2002, Salt Lake City, UT
- 2001 Tapering for Peak Performance. Intermountain Health Care Scholastic Coaches' Conference, August 2001, Salt Lake City, UT
- 2000 Physiology of Winter Sports. Community Olympic Development Program Athlete Conference, September 2000, Park City, UT

AWARDED RESEARCH FUNDING

Dates	Sponsor	Grant	Title	Role	Amount
2021-2022	University New Hampshire	CoRE Pilot Research Partnership	A wearable sensing system for data-driven control and prevention of work-related musculoskeletal disorders	Co-PI	\$30,000
2019-2022	NSF National Robotics Initiative	NSF 1830597	Robust learning of sequential motion from human demonstrations to enable robot-guided exercise training	Co-PI	\$749,999
2019-2020	University New Hampshire	CoRE Pilot Research Partnership	Integrating Socially Assistive Robot and Smart Home to support caregiving of individuals with Alzheimer's disease	Co-PI	\$30,000
2018-2019	University New Hampshire	CoRE Pilot Research Partnership	Quantifying kinematic fidelity of therapeutic exercise using wearable sensors: Machine learning meets therapeutic service delivery.	Co-PI	\$30,000
2017-2018	University New Hampshire	CoRE Pilot Research Partnership	Real-time recognition of older adult activities from motion primitives.	Co-PI	\$25,000
2015-2016	University New Hampshire	UP-2-NIH	Physiological determinants of walking effort as predictors of sedentary behavior in older adults.	PI	\$15,000
2012-2016	NIH National Institute Aging	R15 AG040700-01A1	Comparative effects of resistance training protocols in older adults at risk of mobility limitations.	Co-I	\$360,236
2013-2014	University New Hampshire	Chase Faculty Scholar	Excess fat mass impairs strength and mobility in older adults.	PI	\$5,000
2012-2014	NIH National Center for Advancing Translational Sciences	L30 TR000588-02	Strength, obesity and mobility in older adults.	PI	\$33,072

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Dates	Sponsor	Grant Number	Title	Role	Amount
2012-2014	NIH National Institute Aging	R43 AG041527-01A1	An unobtrusive, multi-individual gait monitor.	Co-I	\$123,394
2012	University New Hampshire	Faculty Fellowship	Augmenting strength-to-weight ratio affects walking performance equally in obese and nonobese older adults.	PI	\$5,970
2010-2012	NIH National Institute Aging	L30 AG038028-01	Origins of mobility limitation in older women.	PI	\$39,247
2012	University New Hampshire	International Travel Grant - Brazil	Evaluating fall risk in older adults.	PI	\$1,000
2011	Foundation Movement Intelligence	-	Efficacy of a novel, comprehensive movement awareness program.	Co-I	\$14,386
2008	University New Hampshire	Faculty Fellowship	Rapid torque development in older female fallers and nonfallers.	PI	\$5,750
2006	NIH INBRE Vermont Genetics Network	P20 RR016462- 067055	Aging, physical activity and muscle function.	PI	\$84,587
2005	NIH INBRE Vermont Genetics Network	P20 RR016462- 056814	Aging, physical activity and muscle function.	PI	\$56,837
2004	Vermont EPSCoR	-	Equipment Grant: Indirect Calorimeter.	PI	\$22,800
2003	NIH INBRE Vermont Genetics Network	P20 RR016462	Changes in passive tension and resiliency of skeletal muscle following 4-weeks of flexibility training.	PI	\$10,000
2003	Johnson State College	Faculty Development	Changes to passive tension and muscle damage following flexibility training in skeletal muscle.	PI	\$1,900
1998	U.S. Olympic Committee	SST98-BIA-001	Changes in roller ski lactate profile following grade changes and detraining.	PI	\$5,300

TEACHING EXPERIENCE

UNH student rating of instructor effectiveness mean: 4.85 / 5.0, university average = 4.54

University of New Hampshire

2007 - present

Biology of Aging
Exercise Lab Techniques
Applied Biomechanics
Exercise Rx & Leadership

Exercise Physiology
Topics in Applied Physiology
Metabolic Adaptations to Ex.
Graduate Colloquium

University of Vermont

2006 - 2007

Anatomy & Physiology

Human Physiology & Exercise

Johnson State College

2002 - 2007

Body & Society
Diseases Modern World
Anatomy & Physiology
Nutrition

Cardiopulmonary Rehab
Exercise Physiology
Kinesiology
Sport Psychology

University of Utah

1998 - 2001

Environmental Physiology
Advanced Ex. Phys. Lab
Healthy Lifestyles

Assessing the Athlete
Exercise Physiology

University of Massachusetts

1997 - 1998

Exercise Physiology Lab

PROFESSIONAL DEVELOPMENT

2017 - 2018	Advancing Chairs as Leaders – UNH
2017 - 2018	CHHS Learning Exchange on Race and Equity
2015	Pathway to Professorship participant – UNH
2014 - 2015	UP-2-NIH participant - UNH
2011	Faculty Research Engagement Academy participant - UNH

UNIVERSITY SERVICE

Department-level

2013 - present	Promotion and Tenure Committee
2018 - 2020	B.S. Exercise Science Program Coordinator
2019 - 2020	Exercise Science Tenure Track Professor Search Chair

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2019 - 2020 Exercise Science Clinical Assistant Professor Searches Chair
2018 Sport Studies Assistant Professor Search Committee
2016 - 2018 M.S. Exercise Science Graduate Program Coordinator
2015 - 2016 New Hampshire Hall Safety Committee
2007 - 2014 Awards and Celebrations Committee
2012 - 2013 Faculty Senate Representative
2009 Exercise Science Clinical Assistant Professor Search Committee
2008 - 2009 Exercise Science Assistant Professor Search Committee

College-level

2019 - present Chair - CHHS Research Council
2016 - 2019 Chair - CHHS Academic Affairs Committee
2015 - 2016 CHHS Strategic Intentions Workgroup - Academic Programs
2015 CHHS Research Support Initiative Committee

University-level

2017 - present UNH Research Council
2020 - 2021 UNH COVID-19 Task Force
2015 - present Panelist UNH Faculty Development programs (New Faculty Orientation, Up-2-NIH, Pathway to Professorship, University-Industry Partnerships)
2020 CoRE COVID-19 Pilot Research Partnership grant reviewer
2019 Faculty Review Panel - Director Corporate Engagement search
2015, 2018 Writing Academy scholarly coach
2017 Research Engagement Academy scholarly coach
2014 - 2017 Pre-Health Advisory Committee member
2013 Provost Search Committee member
2012 - 2013 Faculty Senate Academic Affairs Committee member
2011 - 2012 Undergraduate Research Opportunities Program Review Committee member
2009 - 2011 *Healthy UNH* Measurement Sub-Committee member
2009 - 2011 Student Fulbright Scholarship Committee member
2005 - 2007 Quantitative Literacy Committee member - Johnson State College

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2005 - 2007	Academic Status Committee member - Johnson State College
2005 - 2007	Academic Support Services - Faculty Advisory Board - Johnson State College
2003 - 2005	Faculty Council (Senate) secretary - Johnson State College
2002 - 2007	Established Human Subjects Institutional Review Board and served as Chair - Johnson State College

PROFESSIONAL SERVICE

Journal Editorial Board

2016 - present *Gait & Posture*

Ad-Hoc Journal Peer-Review

<i>Medicine & Science in Sports & Exercise</i>	<i>The Gerontologist</i>	<i>Journal of Aging and Physical Activity</i>
<i>Archives of Physical Medicine and Rehabilitation</i>	<i>International Journal of Sports Medicine</i>	<i>Journal of Strength and Conditioning Research</i>
<i>AGE</i>	<i>Research Quarterly for Exercise and Sport</i>	<i>Journal of Physical Therapy Science</i>
<i>Osteoarthritis and Cartilage</i>	<i>Clinics and Practice</i>	<i>PLOS ONE</i>
<i>European Journal Applied Physiology</i>	<i>Journal of Biomechanics</i>	

Grant Organizations

2011 - present	National Institutes of Health Loan Repayment Program Ambassador
2022	National Institutes of Health Grant Reviewer – Special Emphasis Panel on Physical Activity and Cognitive Health (ZAG1 ZIJ-4 A3)
2008 - 2017	Vermont Genetics Network Grant Reviewer (NIH INBRE program)
2015 - 2016	Brazilian National Institutes of Science & Technology (INCT) International Grant Reviewer
2013	National Institutes of Health Early Career Reviewer Program – Neurological, Aging and Musculoskeletal Epidemiology Study Section (NAME)

Professional Organizations

2017 - 2020	President - New England Chapter of the American College of Sports Medicine (3-yr term, president-elect, president, past-president)
2017 - 2018	Coordinator - National Biomechanics Day at UNH in cooperation with the American Society of Biomechanics

Dain LaRoche, Ph.D., FACSM

- 2015 Advances in Epidemiology: Device-Based Monitoring session chair, ACSM Annual Meeting.
- 2013 Blood Flow Restriction session chair, ACSM Annual Meeting.
- 2010 - 2012 New England Chapter of the American College of Sports Medicine Member-at-large
- 2008 - 2010 New England Chapter of the American College of Sports Medicine New Hampshire State Representative
- 2001 Reviewer - International Olympic Committee's 6th World Congress on Sport Science

Consultant

- 2019 Exercise Science B.S. curriculum development - University of Saint Joseph, West Hartford, CT

PUBLIC SERVICE

- 2015 - 2017 New Hampshire Governor's Council on Physical Activity and Health
- 2004 - 2014 New England Nordic Skiing Association Coaches Development Committee

PROFESSIONAL MEMBERSHIPS

- 1998 - present American College of Sports Medicine (Fellow)
- 2005 - present New England Chapter of the American College of Sports Medicine