

## CURRICULUM VITAE

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**Name:** Thorburn Brock Symons, Ph.D.

**Biographical:** Birthplace: Windsor, Ontario, Canada  
Citizenship: Canadian

**Present Position:**

Assistant Professor  
Graduate Center for Gerontology  
University of Kentucky  
09/2007 – present

**Address:**

900 South Limestone  
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**Education:**

- 09/2004 – 08/2007 Post-doctoral Fellowship  
Division of Rehabilitation Sciences  
The University of Texas Medical Branch, Galveston, Texas, U.S.A.
- 01/2004 – 05/2004 Post-doctoral Fellowship  
Faculty of Health Sciences, School of Kinesiology  
The University of Western Ontario, London, Ontario, Canada
- 01/2000 – 12/2003 Doctor of Philosophy (Ph.D.)  
Faculty of Health Sciences, School of Kinesiology  
The University of Western Ontario, London, Ontario, Canada
- 08/1997 – 12/1999 Master of Science (M.Sc.)  
College of Education, Department of Kinesiology and Health Promotion  
The University of Kentucky, Lexington, Kentucky, U.S.A.
- 09/1991 – 12/1995 Bachelor of Human Kinetics (B.H.K)  
Faculty of Human Kinetics  
The University of Windsor, Windsor, Ontario, Canada  
*Honors: Movement Science*

**Principle Areas of Research:**

Preservation of lean body mass through the promotion of skeletal muscle anabolism, the restoration of skeletal muscle function, the enhancement of functional daily performance, and the development and refinement of methods used to assess skeletal muscle function in older adults.

Methodologies used:

- Neuromuscular assessment techniques
  - Isokinetic dynamometry and electromyography (EMG)
- Functional performance measures.
- Stable amino acid isotope methodology:

- Mixed muscle fractional synthetic rate (FSR)
- Magnetic resonance imaging (MRI)
  - assessment of cross-sectional area and muscle volume
- High performance liquid chromatography (HPLC)

**Research:**

External Funding:

**1. T. Brock Symons (CO-I)**

Dr. Charlotte A. Peterson, Ph.D. (PI)

Merck Protocol Number MK2866-017: Progressive resistance exercise training intervention in older women with sarcopenia : Assessment of effects of exercise on measures of functional performance and exploratory biomarkers.

Merck and Co., Inc. Value: to be determined. 04/2010 – 3/2011.

**2. T. Brock Symons (CO-I)**

Drs. Charlotte A. Peterson, Ph.D. and Leslie J Crofford, M.D. (PIs)

Contribution of altered muscle hemodynamics to fatigability in older persons with and without fibromyalgia.

National Institute on Aging. Value: \$275,000.00. 09/2009 – 08/2011.

Previous Grant Support:

**1. T. Brock Symons (CO-I)**

Dr. D. Paddon-Jones (PI)

The effect of dose and composition of dietary beef on muscle protein anabolism in the young and elderly.

National Cattlemen's Association. Value: \$244,132, 06/2005-06/2007.

**2. T. Brock Symons (Research Assistant)**

Dr. D. Paddon-Jones (PI)

NNJ04HD68G – Artificial gravity as a multi-system countermeasure to bed rest deconditioning.

National Aeronautics and Space Administration. Value: \$116,090, 08/2004-09/2006.

Research Projects:

1. *Contribution of Altered Muscle Hemodynamics to Fatigability in Older Persons With and Without Fibromyalgia.*

To identify possible differences in muscle function which may contribute to the symptoms of fatigue in individuals with fibromyalgia, as well as healthy individuals susceptible to fatigue. Data acquisition.

2. *The Effect of Massage on Lower Limb Skeletal Muscle Blood Flow.*

Determine the acute response of skeletal muscle blood flow and skeletal muscle oxygenation following lower limb massage in both the young and the old via near-infrared diffuse optical spectroscopy.

Data acquisition.

3. *Massage Therapy Effects on Fatigue and Fatigability in Older Adults.*  
To investigate the effect(s) of manual touch therapy on fatigue and skeletal muscle fatigability associated with the performance of activities of daily living in older adults.  
Data acquisition.
4. *The Effects of an Acute Bout of PNF Stretching on Flexibility, Power, Strength and Functional Ability in Elderly Populations.*  
To determine whether an acute bout of PNF results in an acute decrease in skeletal muscle power and strength, altered neuromuscular response and its potential impact on functional ability in an elderly population.  
Data acquisition.
5. *Dose and Composition of Dietary Beef on Muscle Protein Anabolism.*  
To investigate the metabolic response to a practical nutritional intervention on the rate of skeletal muscle protein synthesis in the elderly and young.  
Manuscript preparation.

Publications:

*Articles in Refereed Publications:*

1. **Symons TB**, Sheffield-Moore M, Chinkes DL, Wolfe RR and Paddon-Jones D. Moderating the portion size of a protein-rich meal improves anabolic efficiency in young and elderly. *Journal of the American Dietetic Association.* 109:1582-1586, 2009.
2. Ferrando AA, Paddon-Jones D, Hays NP, Kortebein P, Ronsen O, Williams RH, McComb A, **Symons TB**, Wolfe RR, Evans W. EAA supplementation to increase nitrogen intake improves muscle function during bed rest in the elderly. *Clinical Nutrition. Epub*, 2009.
3. **Symons TB**, Sheffield-Moore M, Chinkes DL, Ferrando AA and Paddon-Jones D. NASA Artificial Gravity Pilot Study: artificial gravity maintains skeletal muscle protein synthesis during 21 days simulated microgravity. *Journal of Applied Physiology* . 107:34-38, 2009.
4. Kortebein P, **Symons TB**, Ferrando AA, Paddon-Jones D, Ronsen O, Protas E, Conger S, Lombeida J, Wolfe,R, and Evans WJ. Functional impact of 10 days of bed rest in healthy older adults. *Journals of Gerontology: Medical Sciences.* 63:1076-1081, 2008.
5. **Symons TB**, Cocke TL, Schutzler SE, Chinkes DL, Wolfe RR and Paddon-Jones D. Aging does not impair the anabolic response to a protein-rich meal. *American Journal of Clinical Nutrition.* 86:451-6, 2007.
6. **Symons TB**, Vandervoort AA, Rice CL, Overend TJ, and Marsh GD. The effects of maximal isometric and isokinetic resistance training on strength and functional mobility in older adults. *Journals of Gerontology: Medical Sciences.* 60:777-781, 2005

7. **Symons TB**, Vandervoort AA, Rice CL, Overend TJ, and Marsh GD. Reliability of isokinetic and isometric strength tests in older men. *Journals of Gerontology: Medical Sciences*. 60:114-119, 2005.
8. **Symons TB**, Vandervoort AA, Rice CL, Overend TJ, and Marsh GD. Reliability of isokinetic and isometric strength tests in older women. *Journal of Aging and Physical Activity*. 12:525-537, 2004.
9. McNeil CJ, Allman BL, **Symons TB**, Rice CL, and Vandervoort AA. Neuromuscular fatigue following repeated bouts of eccentric exercise. *European Journal of Applied Physiology and Occupation Therapy*. 91:579-585, 2004.
10. **Symons TB**, Clasey JL, Gater DR, and Yates JW. The effects of deep heat as a preventative mechanism on delayed onset muscle soreness. *Journal of Strength and Conditioning Research*. 18:155-161, 2004.

*Invited Literature Reviews:*

1. Bellew JW, **Symons TB**, and Vandervoort AA. Geriatric Fitness: Effects of aging and recommendations for exercise in older adults. *Cardiopulmonary Physical Therapy*. 16:21-32, 2005.
2. Vandervoort AA, and **Symons TB**. Functional and metabolic consequences of sarcopenia. *Canadian Journal of Applied Physiology*. 26:90-101, 2001.

*Articles in Preparation:*

1. **Symons TB**, Sheffield-Moore M, Chinkes DL, Wolfe RR and Paddon-Jones D. The acute anabolic response of skeletal muscle to combined intact protein ingestion and resistance exercise. *(In preparation for second review)*

*Conference Proceedings (Published Abstracts):*

1. **Symons TB**, Sheffield-Moore M, Chinkes DL, Wolfe RR and Paddon-Jones D. The acute anabolic response of skeletal muscle to combined intact protein ingestion and resistance exercise. *American College of Sports Medicine*. Indianapolis, 2008.
2. **Symons TB**, Sheffield-Moore M, Chinkes DL, Wolfe RR and Paddon-Jones D. The anabolic response to a large dose of intact protein in the young and elderly. *FASEB: Experimental Biology*. San Diego, 2008.
3. Nicholas PH, Lombeida JI, Ronson O, **Symons TB**, Kortebein P, Ferrando AA, Paddon-Jones D, Wolfe RR, and Evans WJ. Indices of orthostatic intolerance following 10 days of bed rest in healthy, older men and women. *FASEB: Experimental Biology*. San Diego, 2008.
4. **Symons TB**, Tissier S, Fernandez AL, and Protas EJ. Assessment of ambulatory activity in community-dwelling healthy fast- and slow-walkers. *American College of Sports Medicine*. New Orleans, 2007.

5. Protas EJ, Fernandez AL, and **Symons TB**. Assessment of ambulatory activity in community-dwelling healthy fast- and slow-walkers. *American College of Sports Medicine*. New Orleans, 2007.
6. **Symons TB**, Lombeida JI, Protas EJ, Kortebein P, Paddon-Jones D, Ferrando AA, Wolfe RR, and Evans WJ. Essential amino acid supplementation on muscle function and stair ascent / descent following 10 days of bed rest in older adults. *FASEB: Experimental Biology*. Washington, 2007.
7. Paddon-Jones D, **Symons TB**, Cocke TC, Schutzler SE, Ferrando AA, and Wolfe RR. Age specific changes in protein synthesis and plasma amino acid profiles following protein ingestion. *American College of Sports Medicine*. Denver, 2006.
8. Ronsen O, **Symons TB**, and Borsheim E. Pilot test and retest of time to exhaustion in brain injury patients participating in amino acid supplementation study to reduce fatigue. *American College of Sports Medicine*. Denver, 2006.
9. Lombeida JI, **Symons TB**, Paddon-Jones D, Kortebein P, Ferrando AA, Ronsen O, Wolfe RR, Evans WJ, and Protas EJ. Skeletal muscle strength and functional ability in older adults following 10 days of bed rest. *FASEB: Experimental Biology*. San Francisco, 2006.
10. **Symons TB**, Rice CL, and Vandervoort AA. Effects of upper limb eccentric resistance exercise on muscle function in older adults. *American College of Sports Medicine*. Nashville, 2005.
11. **Symons TB**, Vandervoort AA, Rice CL, Overend TJ, and Marsh GD. Reliability of isokinetic and isometric strength tests in older women. *Canadian Society for Exercise Physiology*. Newfoundland, 2003.
12. **Symons TB**, Rice CL, Overend TJ, Marsh GD, and Vandervoort AA. A comparison of maximal isokinetic and isometric resistance training in older adults. *American College of Sports Medicine*. San Francisco, 2003.
13. Overend TJ, **Symons TB**, Marsh GD, Rice CL, and Vandervoort AA. The effect of strength training on functional mobility in older adults. *American College of Sports Medicine*. San Francisco, 2003.
14. McNeil, CJ, Allman BL, **Symons TB**, Rice CL, and Vandervoort AA. Neuromuscular fatigue following repeated bouts of eccentric exercise. *American College of Sports Medicine*. San Francisco, 2003.
15. Allman BL, McNeil CJ, **Symons TB**, Rice CL, and Vandervoort AA. The effect of set structure manipulation on neuromuscular fatigue mechanisms with eccentric exercise. *American College of Sports Medicine*. San Francisco, 2003.
16. **Symons TB**, Vandervoort AA, Rice CL, Overend TJ, and Marsh GD. Reliability of isokinetic and isometric strength tests in older men. *Canadian Society for Exercise Physiology*. Montreal, 2002.

17. Overend TJ, **Symons TB**, Lalonde MP, Rozycki S, Trinkwon HA, Wolts BD, and Vandervoort AA. Reliability of effort in maximal concentric and eccentric isokinetic exercise. *American College of Sports Medicine*. St. Louis, 2002.
18. **Symons TB**, Clasey JL, Gater DR, Pascoe D. and Yates JW. The effects of deep heat as a preventative mechanism of delayed onset muscle soreness *American College of Sports Medicine*. Indianapolis, 2000.

**Teaching:**

The University of Kentucky:

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|----------------|--|
| 2009 – present | Instructor<br>Department of Gerontology<br>GRN 612: Biology of Aging   |
| 2008 – present | Instructor<br>Department of Gerontology<br>GRN 600: A Study of the Older Person                                |
| 2008 – present | Instructor<br>Department of Gerontology<br>GRN 770 - 003: Physical Activity and Aging                          |
| 2007           | Guest Lecturer<br>Department of Gerontology<br>GRN 610: Biology of Aging – Osetology                           |
| 2007           | Guest Lecturer<br>Department of Gerontology<br>GRN 600: A Study of the Older Person – The Physiological System |

The University of Texas Medical Branch:

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|-------------|---|
| 2006 – 2007 | Guest Lecturer<br>Department of Physical Therapy<br>PHYT 5401: Basic Evaluation Techniques – Strength and Power     |
| 2005        | Guest Lecturer<br>Department of Physical Therapy<br>PHYT 5403: Therapeutic Interventions I – Physiology of bed rest |

The University of Western Ontario: Graduate teaching assistant.

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|-------------|--|
| 2003        | Anatomy of the Human Body: A description of systemic structure and function – Part II. (3 <sup>rd</sup> year course)<br>Delivered weekly tutorial sessions and developed test questions. |
| 2002        | Health Policy. (2 <sup>nd</sup> year course)<br>Held weekly office hours and graded papers and exams.  |
| 2001 – 2002 | Biomechanical Analysis of Physical Activity. (3 <sup>rd</sup> year course)<br>Taught theoretical concepts and ran weekly laboratory sessions and graded lab reports.                     |

2000 Introduction to Psycho-motor Behavior (1<sup>st</sup> year course)  
Ran weekly laboratory sessions.

Mentoring:

*Doctoral Committee Member:*

2008 Sonya N. Munk, Ph.D. Candidate, Gerontology, UK.

*Master's Committee Member:*

2008 Michael Dalessio, M.Sc. Candidate, Kinesiology and Health Promotion, UK

2008 Lindsey Krompak, M.Sc. Candidate, Kinesiology and Health Promotion, UK

*Research Mentor:*

2006 Angel L. Fernandez, Clinical Research Coordinator, Physical Therapy, UTMB

2005 – 2006 Sandrine Tissier, P.T. Research Associate II, Physical Therapy, UTMB

Recent Education and Training:

2009 TASC: Blackboard 101 Training Workshop.  
2008 Practicum in Teaching – GRN 770  
2008 Faculty Development Series – The Culture of the College Classroom  
2006 Understanding and challenging presentation nerves - UTMB Teaching Skills Series.  
2006 Developing your teaching philosophy - UTMB Teaching Skills Series.  
2006 Effective questioning techniques - UTMB Teaching Skills Series.  
2006 Active learning strategies - UTMB Teaching Skills Series.  
2006 Grants 101: Professional grant proposal writing.  
2005 NCMRR: Medical rehabilitation research training workshop.  
2004 Introduction to protein expression, purification, and detection.  
2004 Basic molecular biology laboratory techniques: Theory and basic techniques.  
2004 Scientific writing for clinical research.

Scholarships:

2003 Ontario Graduate Studies – Science and Technology.  
2000 – 2003 Special University Scholarship, The University of Western Ontario.  
2000 – 2003 Special University Scholarship (Summer Terms), The University of Western Ontario.

**Service:**

University of Kentucky:

*College of Public Health:*

2009 Information Technology Hiring Committee.  
2009 – present Admissions and Student Affairs Committee.

*Graduate Center for Gerontology:*

2007 – present            Administrative Council.  
2007 – present            Curriculum Committee.  
2008 – 2009              Program of Merit Committee.  
2008 – present            Sigma Phi Omega.

Community:

2009 – present            Kentucky Safe Aging Coalition.

Membership in National, Regional, and Local Professional Societies:

American College of Sports Medicine Special Interest Group: Aging, member (2009 – present).  
American College of Sports Medicine Special Interest Group: Nutrition, member (2009 – present).  
University of Kentucky Center for Muscle Biology, member (2009 – present).  
Graduate Faculty for the Exercise Science Program, member (2008 – present).  
American Society for Nutrition, member (2008 – present).  
American Gerontological Society of America, member (2007 – present).  
American College of Sports Medicine, member (1998 – present).  
Canadian Society of Exercise Physiology, member (2000 – 2004).

Invited Reviewer:

2009                      Aging Clinical and Experimental Research.  
                              Journal of Geriatric Physical Therapy.  
                              Pediatric Physical Therapy  
                              Extension Fact Sheet on Physical Activity and Falls  
Previous Years        Journal of Applied Physiology.  
                              Journal of Science and Medicine in Sport  
                              Medicine and Science in Sports and Exercise

Presentations:

2009                      Kentucky Safe Aging Coalition, Lexington, Kentucky.  
                              The Impact of Exercise and Nutrition on Muscle Function and  
                              Functional Ability. **T. Brock Symons.**  
2008                      Clinical and Translational Science Fall Conference, University of Kentucky.  
                              Translational Research Approaches to Understand and Combat Fatigue.  
                              Charlotte A. Peterson and **T. Brock Symons.**

Other:

2007                      Super Human Radio Show (August, 18).  
                              The Anabolic Effects of Protein as We Age.