

**Michael J. Toth**  
**CURRICULUM VITAE**

Position: Associate Professor  
Department of Medicine

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### **EDUCATION**

<u>Year</u>	<u>Institution</u>	<u>Degree</u>	<u>Area of Degree, Accolades</u>
1997-1998	University of Vermont	Post-Doc	Isotope Tracers Advisor D. Matthews
1993-1997	University of Maryland at Baltimore	PhD	Physiology
1993	University of Vermont	BS	Biological Sciences

### **LICENSES, CERTIFICATION - none**

### **FACULTY POSITIONS HELD**

<u>Years</u>	<u>Institution</u>	<u>Academic Title</u>	<u>Department</u>
2008-	University of Vermont	Associate Professor	Medicine
2003-2008	University of Vermont	Assistant Professor	Medicine
1998-2002	University of Vermont	Research Assistant Professor	Medicine

### **OTHER POSITIONS AND MAJOR ADMINISTRATIVE POSITIONS HELD**

<u>Years</u>	<u>Location/Program Name</u>	<u>Role</u>
2015-	Orthopaedics and Rehabilitation	Secondary appointment
2009-	Obstetrics and Gynecology	Secondary appointment
2003-	Molecular Physiology and Biophysics	Secondary appointment

### **HONORS AND AWARDS**

<u>Year</u>	<u>Name of Award</u>
1993	Student Investigator of the Year: New England Chapter of the American College of Sports Medicine
1994	Graduate Merit Award: University of Maryland at Baltimore

1995	American Federation for Aging Research Glenn Foundation Scholarship for Research in the Biology of Aging
2003	New Investigator Award from the Endocrinology and Metabolism Section of the American Physiological Society
2014	Silver Stethoscope Teaching Award, UVM College of Medicine

### KEYWORDS/AREAS OF INTEREST

muscle, physiology, aging, heart failure, cancer, knee osteoarthritis, sarcopenia, cachexia, atrophy, myofilaments, disability

### PROFESSIONAL ACTIVITIES- OVERALL SUMMARY

My professional effort is allocated primarily towards research, with lesser commitments to teaching and service (80:10:10, respectively).

The majority of my time is spent conducting academic *research* and my accomplishments are evident in both my funding portfolio and publications. I currently hold four (4) National Institutes of Health (NIH) grants. All of these active grants have received scores of 4<sup>th</sup> percentile or better. I have been consistently funded by NIH throughout my entire tenure as a faculty member at UVM (18 yrs), having competed successfully for 8 R-series NIH awards and 1 K-series, career development award, with 5 of these NIH R-series grant awards being awarded since the last RPT action in 2008, a time when rates for grant funding at NIH have been at historic lows. During my tenure at UVM, I have published over 70 peer-reviewed manuscripts describing results from these projects in top-tier journals, as well as scholarly reviews and book chapters. Of these publications, 35 manuscripts, 7 reviews, 2 book chapters and 1 consensus statement have been published since the last RPT action. This rate of productivity averages more than 5 publications per year. The impact of these publications is evident in an H index of 32 and the fact that they have been cited nearly 3200 times, with over 40% of these citations occurring in the last 5 years. I have served as first or senior (ie, last) author on more than half of these publications. The standing of my research in this field is further demonstrated by invited presentations at national and international meetings and scholarly reviews and book chapters.

I also contribute to the *teaching* mission of the university in formal classroom settings, as well as mentoring fellows, graduate students and undergraduates. I regularly lecture in the UVM Medical school curriculum and received the Silver Stethoscope teaching award in 2014, which recognizes faculty members who have few lecture hours, but make a substantial contribution to the students' education. Student evaluations have consistently reflected a high level of satisfaction with my lectures. I have also excelled in my role as a mentor. Of the 3 post-doctoral fellows I have mentored directly in the last 10 years, all of them have moved on to tenure-track faculty positions in competitive, academic institutions. Additionally, all of them have successfully competed for extramural funding to support their work, with 2 of them receiving highly-competitive NIH K-series training awards, for which I have served, or currently serve, as their primary mentor.

Finally, I participate in numerous *service* activities for my Department, College, the University and governmental and other professional entities. Most notable among these, which further documents my national prominence in my research field, is my role as a peer reviewer for NIH study sections, as a former sitting member of the National Institutes of Aging (NIA) Clinical Aging study section and numerous *ad hoc* positions on other review groups. Locally this service to the research mission of the University is exemplified by my role as Chair of the UVM College of Medicine Research Committee and includes my sitting on the Department of Medicine Research Committee, as well as other

committees (COM Fitness Committee, UVM Institutional Review Board, CRC Scientific Advisory Committee). Finally, further evidence of my national prominence in my field is provided by my being a member of the editorial board of two scholarly journals, with one, the *American Journal of Physiology: Endocrinology and Metabolism* being one of the oldest and highest-ranked journals in its field.

In summary, I have an international reputation and strong record of achievement in academic research, clear evidence of effectiveness in classroom lecturing and mentoring of research trainees and a consistent record of service at both the institutional and national levels.

**SUMMARY OF ACCOMPLISHMENTS** *Please indicate no more than 8 career accomplishments. Use Single sentences and bullets*

- Internationally recognized expert in the effects of aging and disease on skeletal muscle structure, function and metabolism
- Continual NIH funding for 17 consecutive years, including 8 R-series awards.
- Strong publication record, including 100+ peer-reviewed, original research papers
- First laboratory to characterize skeletal muscle function at the molecular level in humans
- Member of NIH study sections, both sitting member and various ad hoc duties
- Excellence in teaching, as reflected by receipt of the Silver Stethoscope teaching award in 2014

**PROFESSIONAL SERVICE**

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DEPARTMENTAL SERVICE

<b>Years</b>	<b>Department</b>	<b>Committee</b>	<b>Role</b>
2011	Department of Medicine	Research Committee	Member
2015	Department of Neurological Sciences	Faculty Search Committee	Member

COLLEGE SERVICES

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2002	College of Medicine Research Committee	Member
2010	College of Medicine Research Committee	Chair
2012-2013	College of Medicine Faculty Strategic Planning Committee	Member
2013-2015	College of Medicine Fitness Committee	Member

MEDICAL CENTER SERVICE - none

UNIVERSITY SERVICE

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2003-2009	UVM General Clinical Research Center Scientific Advisory Committee	Member
2006-2009	UVM/FAHC Committee on Human Research in the Medical Sciences	Member

2009-	UVM/UVMMC CHRMS Alternate reviewer	Alternate
2016	UVM Cancer Center External Advisory Board	Grant Reviewer

#### GOVERNMENT

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2001-2003	<i>National Institutes of Health- GRM Study Section</i>	<i>Ad hoc</i>
2002	<i>American Heart Association- NE Regional Grant Review</i>	<i>Ad hoc</i>
2006	<i>National Center for Research Resources- Infrastructure Development Grant Site Visit</i>	<i>Ad hoc reviewer</i>
2010-2014	<i>National Institutes of Health- NIA-C Study Section</i>	Member
2011	<i>National Institutes of Health</i>	ZAG1 ZIJ8 - PPG Review
2012	<i>National Institutes of Health</i>	ZRG1 MOSS-D – <i>Ad hoc</i>
2012	<i>National Institutes of Health</i>	ZAG1 ZIJ9 – PPG Review
2015	<i>National Institutes of Health</i>	SMEP Study Section – <i>Ad hoc</i>

#### INTERNATIONAL

<b>Years</b>	<b>Society</b>
1999	<i>International Dietary Energy Consultancy Group</i>
2012-2013	<i>European Respiratory Society Task Force on Physical Activity in Patients with Chronic Obstructive Pulmonary Disease</i>

#### SOCIETY MEMBERSHIPS

<b>Years</b>	<b>Society</b>
1991-93	New England Chapter of the American College of Sports Medicine
1993-96	Gerontological Society of America
1998-present	American Physiological Society
2005-2010	American Society of Nutrition
2014-present	Society on Sarcopenia, Cachexia and Wasting Disorders

#### SERVICE TO PROFESSIONAL ORGANIZATIONS

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2002-2003	<i>American Federation for Aging Research, member National Scientific Advisory Council</i>	Member
2003-2005	<i>American Society for Nutritional Sciences, organized oral and poster sessions for FASEB Experimental Biology Meeting</i>	Member
2005-2007	<i>American Physiological Society, member of Awards Committee</i>	Member
2006	<i>American Physiological Society, chair and organizer for major topic</i>	Chair

2016	symposium for Experimental Biology 2006 <i>Society for Cachexia and Wasting Disorders</i> Symposium Chair for for annual <i>Cachexia</i> international meeting: “ <i>Exercise and Nutrition: Impact on cachexia and muscle wasting</i> ”	Chair
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**SERVICE TO PROFESSIONAL PUBLICATIONS**

<b>Years</b>	<b>Journal/Publication/Board</b>
2007	Editorial Board: <i>American Journal of Physiology: Endocrinology and Metabolism</i>
2016	Editorial Board: <i>Journal of Cellular Biochemistry</i> <i>American Journal of Clinical Nutrition</i> -reviewer <i>American Journal of Physiology</i> –reviewer <i>American Journal of Respiratory and Critical Care Medicine</i> –reviewer <i>Circulation</i> –reviewer <i>Circulation: Heart Failure</i> –reviewer <i>European Journal of Heart Failure</i> –reviewer <i>Experimental Physiology</i> –reviewer <i>FASEB J</i> –reviewer <i>Journal of the American Geriatrics Society</i> –reviewer <i>Journal of Applied Physiology</i> –reviewer <i>Journal of Biological Chemistry</i> –reviewer <i>Journal of Clinical Endocrinology and Metabolism</i> –reviewer <i>Journal of Gerontology</i> –reviewer <i>Journal of Physiology</i> –reviewer

**PUBLIC SERVICE** - none

**SUMMARY OF SERVICE ACTIVITIES**

My service at the Departmental, College, University and Federal levels have all revolved around my primary responsibility of academic research. This has focused around serving on the College of Medicine and Department of Medicine Research Committees, with my having served as the Chair of the former for the last 6 years. This committee duty has included reviewing 2-4 grants submitted to the COM Research Programs 3 times per year (March, July, Nov), with duties as chair focusing on administrating the committee and working with the Senior Associate Dean for Research to communicate funding decisions, as well as serving as a liaison to applicants to assist their submissions. I also served a 3 year term on the UVM Institutional Review Board’s Committee on Human Research in the Medical Sciences (IRB CHRMS, which entailed reviewing proposed research projects on a monthly basis to ensure that the rights and welfare of volunteers are protected, with attendance at monthly committee meetings. My service on and review load for the UVM IRB CHRMS necessitated my stepping down from the General Clinical Research Center’s (GCRC) Scientific Advisory Committee, which also met monthly and required review of 2-3 research proposals seeking GCRC resource utilization, a position I held for 6 years prior. I have also served on Federal grant review committees for the NIH in an *ad hoc* capacity throughout my career, and as a sitting member of the NIA Clinical Aging study section for a 4 year term (2010-2014). I also serve on the editorial board for two journals and conduct 10-15 manuscript reviews for these journal and others in my field.

## TEACHING

### FORMAL SCHEDULED CLASSES

Year	Course No: Title	Course		Hours	Number of Learners	Learner Level
		R	E			
2009	MD 556: Nutrition Metabolism GI	X		10	~110	Med
2009	MD 560: Generations	X		1.5	~110	Med
2010	MD 556: Nutrition Metabolism GI	X		8	~110	Med
2010	MD 560: Generations	X		1.5	~110	Med
2011	MD 556: Nutrition Metabolism GI	X		10	~110	Med
2011	MD 560: Generations	X		1.5	~110	Med
2012	MD 556: Nutrition Metabolism GI	X		10	~110	Med
2012	MD 560: Generations	X		1.5	~110	Med
2013	MD 556: Nutrition Metabolism GI	X		10	~110	Med
2013	MD 560: Generations	X		1.5	~110	Med
2014	MD 556: Nutrition Metabolism GI	X		13	~110	Med
2014	MD 560: Generations	X		1.5	~110	Med
2015	MD 556: Nutrition Metabolism GI	X		13	~110	Med
2015	MD 560: Generations	X		1.5	~110	Med
2016	MD 556: Nutrition Metabolism GI	X		10	~110	Med
2016	MD 560: Generations	X		1.5	~110	Med
2016	RMS 244: Therapeutic Modalities	X		1	~50	Ugrad

R-required; E-elective; Hours-approx. per semester; G-graduate studies (instruction as per the COM Teaching Academy Portfolio)

### POSTGRADUATE AND OTHER COURSES

#### PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program School	Role	Current Position
2000-2001	Travis Beckett	Undergraduate	Honors Thesis Advisor	Juno Therapeutics
2001	Jessica Saunders	Medical student	Research Rotation Mentor	Private practice
2008-2009	Justin Fergusson	Undergraduate	Research Mentor for course credit	Unknown
2009-2011	Nicholas Bedrin	Undergrad/Post-baccalaureate	Research Mentor for course credit	New York Medical College
2010-2013	Andrew Sweeny	Undergrad/Post-baccalaureate	Research Mentor /Supervisor	Boston University School of Dental Medicine
2012	James Berking	Undergraduate	Research Mentor for course credit	PA School, D'Youville College
2013	Katie Bedard	Undergraduate	Honors Thesis Mentor	New York Medical College
2012	Ivette Nunez	Post-baccalaureate	Research Mentor	U Georgia Graduate School
2013	Blas Guigni	Doctoral	Rotation Mentor	CMB doctoral candidate
2013	Bryan Dondero	Post-baccalaureate	Research Mentor	PT doctoral candidate
2014	Himani Sharma	Undergraduate	Research Mentor for course credit	UVM graduate
2015	Blas Guigni	Doctoral	Thesis Advisor	CMB doctoral candidate
2015	Brad Fiske	Undergraduate	Research Mentor for course credit	UVM Senior

2015	Michele Sandler	Undergraduate	Research Mentor	UVM Junior
2016	Abigail Haswell	Dcotoral	Rotation Mentor	CMB doctoral candidate

#### DISSERTATION/THESIS COMMITTEE MEMBERSHIP

<b>Dates</b>	<b>Name</b>	<b>Program School</b>	<b>Role</b>	<b>Current Position</b>
2007	Bruce O'Rourke	MS	Committee Chair	Dept of Chemistry
2007	Yuo Luo	PhD	Committee Chair	Unknown
2012	Timothy Tourville	PhD	Committee Chair	Assistant Professor, UVM

#### POSTDOCTORAL FELLOWS AND RESIDENTS DIRECTLY SUPERVISED OR MENTORED

<b>Dates</b>	<b>Name</b>	<b>Fellow</b>	<b>Faculty Role</b>	<b>Current Position</b>
2000	Rebecca Persinger	Postdoctoral fellow	Research Mentor	Science Liasson, Grifols SA
2001-2003	Jerald Goldstein	Clinical fellow	Research Mentor	Private practice
2005-2006	Brian Cooper	Clinical fellow	Research Mentor	Private practice
2006-2008	Mark Miller	Postdoctoral fellow/ K01 mentee	Research Mentor	Assistant Professor, U Mass Amherst
2009-2010	Jennifer Keller	Clinical fellow	Research Mentor	Private practice
2010-2011	Ronald Beesley	Clinical fellow	Research Mentor	US Army
2011-	Damien Callahan	Postdoctoral fellow	Research Mentor	Accepted position as Assistant Professor, U of Oregon (start 9/17)
2012-	Timothy Tourville	Postdoctoral fellow/ K08 mentee	Research Mentor	Assistant Professor, UVM

INFORMAL TEACHING - none

#### FACULTY MENTORED

<b>Dates</b>	<b>Name</b>	<b>Position while Mentored</b>	<b>Faculty Role</b>	<b>Current Position</b>
2008-2014	Mark Miller, PhD	Research Assoc.	NIH K01 mentor	Asst. Prof. U Mass Amherst
2015-	Timothy Tourville, PhD.	Asst. Prof.	NIH K08 mentor	Asst. Prof. UVM

OTHER VISITING FACULTY SUPERVISED - none

TEACHING AIDS - none

#### TEACHING AWARDS AND NOMINATIONS

Year	Award
2010	Silver Stethoscope Award - Nominee
2014	Silver Stethoscope Award - Awardee
2015	Silver Stethoscope Award - Nominee (Note that Dr. Toth has been nominated for this award numerous times, but exact records of those nominations have not been kept for years prior to 2014, with the exception of an acknowledgement of this nomination by Dean Morin in 2010.)





**R21 AR069199** Toth (co-PI) 9/1/2016 – 8/31/2018

**NIH/NIAMS**

*Prevention of skeletal muscle adaptations to traumatic knee injury and surgery*

Major goal is to test the efficacy of early intervention with neuromuscular electrical stimulation in patients suffering from ACL rupture to determine if it mitigates skeletal muscle atrophy and contractile dysfunction at the cellular level and, in turn, improves whole muscle performance and patient-reported outcomes.

Role: Co-PI  
Direct Costs Year 1: \$132,000  
Total Period: 9/1/16-8/31/18

**Dept of Medicine  
Translational  
Medicine Award**

7/1/2016 – 6/30/2017

*Nutrition and exercise in critical illness (The NEXIS Trial): a pilot study*

Major goal is to examine the effect of exercise and amino acid supplementation on physical function of ICU patients and to examine muscle fiber size and ultrastructure from muscle biopsies.

Role: Co-I  
Direct Costs Year 1: \$50,000  
Total Period: 9/1/16-8/31/17

**R01 AG050305** Toth (PI) 9/1/2016 - 5/31/2021

**NIH/NIAMS**

*Skeletal muscle atrophy and dysfunction following total knee arthroplasty*

Major goal is to define the effect of total knee arthroplasty on skeletal muscle size and contractile function, as well as the utility of early, post-surgical rehabilitation with neuromuscular electrical stimulation as a novel transitional care intervention to mitigate deterioration in neuromuscular function.

Role: PI  
Direct Costs Year 1: \$294,306  
Total Period: 9/1/16-8/31/21

**Completed Research Support**

**R01 AG033547** Toth (PI) 7/1/2010 - 6/30/2016

**NIH/NIA**

*Muscle Disuse and Contractile Dysfunction in the Elderly*

Major goal is to define the effect of chronic muscle disuse on skeletal muscle structure and function in patients with advanced knee osteoarthritis and evaluate how resistance exercise training modulates muscle biology.

Role: PI

**U10 HD055944-01** Casson (PI) 8/24/2007 - 8/23/2012

**NIH/NICHD**

*Reproductive Medicine Network Grant*

Major goal was to serve as a site as part of the NIH Reproductive Medicine Network to perform clinical trials to test treatments of various reproductive conditions/disorders.

Role: Co-I

**R01 HL077418** Toth (PI) 5/1/2006 - 4/30/2011  
**NIH/NHLBI**

*Skeletal Muscle Contractile Dysfunction in Heart Failure*

Major goal was to define the defect in skeletal muscle contractile function in heart failure patients at the single muscle fiber level and its response to a resistance exercise training program.

Role: PI

**R01 AG21602** Toth (PI) 2/1/2003 – 1/31/2008  
**NIH/NIA**

*Effect of Ovarian Suppression on Substrate Metabolism*

Major goal was to define the effect of ovarian suppression with gonadotropin hormone releasing hormone agonist on substrate metabolism by studying young, healthy normal cycling females.

Role: PI

**R01 HL-072851** PI 9/01/2002 - 8/31/2007  
*Exercise and Weight Loss in Obese Coronary Patients*

Major goal was to define the utility of a high-caloric expenditure exercise program in cardiac patients, together with behavioral weight loss, would lead to better improvements in cardiometabolic risk profile compared to standard cardiac rehabilitation.

Role: Co-I

**R01 AG17494** Toth (PI) 12/1/1999 - 11/30/2004  
**IH/NIA**

*Skeletal Muscle Protein Metabolism in Heart Failure*

Major goal was to define the biochemical mechanisms underlying changes in quantity and quality of skeletal muscle protein in human patients with chronic heart failure with a focus on the myofilament protein myosin.

Role: PI

**K01 AR02125** Toth (PI) 9/1/1999 - 8/31/2003  
*Skeletal Muscle Protein Metabolism in Heart Failure*

Major goal was to define the mechanisms underlying changes in quantity and quality of skeletal muscle protein in human patients with chronic heart failure, with a specific emphasis on the myofilament protein myosin.

Role: PI

**Pending**

**R01 AG047245** Miller (PI) 4/1/2017 – 3/28/2022  
**NIH/NIA**

*Sex-specific adaptation to different resistance exercise programs in older adults*

Major goal is to examine the effects of classical progressive resistance training versus high-velocity power training in older men and women using a unilateral, lower limb training program and a within-subject design.

Role: Sub-contract PI

**Selected Unfunded Grant Submissions - none**

## SCHOLARSHIP

### **Peer Reviewed Publications**

#### Original Research

1. Poehlman ET, **Toth MJ**, Webb GD. Na-K pump activity contributes to the age-related decline in resting metabolic rate. *J Clin Endocrinol Metab* 76:1054-1057, 1993 [PMID: 8386182].
2. **Toth MJ**, Goran MI, Ades PA, Howard DB, Poehlman ET. Examination of data normalization procedures for expressing peak VO<sub>2</sub> data. *J Appl Physiol* 75: 2288-2292, 1993 [PMID: 7695668].
3. **Toth MJ**, Poehlman ET. Sympathetic nervous system activity and resting metabolic rate in vegetarians. *Metabolism* 43: 621-625, 1994 [PMID: 8177051].
4. **Toth MJ**, Gardner AW, Ades PA, Poehlman ET. Contribution of body composition and physical activity to the age-related decline in peak oxygen consumption in men and women. *J Appl Physiol* 77: 647-652, 1994 [PMID: 8002510].
5. **Toth MJ**, Gardner AW, Poehlman ET. Training status, resting metabolic rate, and cardiovascular disease risk in middle-aged men. *Metabolism* 44: 340-347, 1995 [PMID: 7885279].
6. Poehlman ET, Gardner AW, Goran MI, Arciero PJ, **Toth MJ**, Ades PA, Calles-Escandon J. Sympathetic nervous system activity, body fatness, and body fat distribution in younger and older males. *J Appl Physiol* 78: 802-806, 1995 [PMID: 7775321].
7. Poehlman ET, **Toth MJ**. Mathematical ratios lead to spurious conclusions regarding age- and sex-related differences in resting metabolic rate. *Am J Clin Nutr* 61: 482-485, 1995 [PMID: 7872210].
8. **Toth MJ**, Poehlman ET. Resting metabolic rate and cardiovascular disease risk in resistance- and aerobic-trained middle-aged women. *Int J Obes Relat Metab Disord* 19: 691-698, 1995 [PMID: 8589762].
9. Coleman E, **Toth MJ**, Katzell LI, Fonong T, Gardner AW, Poehlman ET. Body fatness and waist circumference are independent predictors of the age-associated increase in fasting insulin levels in healthy men and women. *Int J Obes Relat Metab Disord* 19: 798-803, 1995 [PMID: 8589781].
10. Poehlman ET, **Toth MJ**, Bunyard LB, Gardner AW, Donaldson KE, Colman E, Fonong T, Ades PA. Physiological predictors of increasing total and central adiposity in aging men and women. *Arch Intern Med* 155: 2443-2448, 1995 [PMID: 7503603].
11. **Toth MJ**, Arciero PJ, Gardner AW, Calles-Escandon J, Poehlman ET. Rates of free fatty acid appearance and fat oxidation in healthy younger and older men. *J Appl Physiol* 80: 506-511, 1996 [PMID: 8929591].
12. Webb GD, **Toth MJ**, Poehlman ET. Influence of physiological factors on the age-related increase in blood pressure in healthy men. *Exp Gerontol* 31: 341-350, 1996 [PMID: 9415117].

13. Nagy TR, Goran MI, Weinsier RL, **Toth MJ**, Schutz Y, Poehlman ET. Determinants of basal fat oxidation in healthy Caucasians. *J Appl Physiol* 80: 1743-1748, 1996 [PMID: 8727562].
14. Obisesan TO, **Toth MJ**, Donaldson K, Gottlieb SS, Fisher ML, Vaitekevicius P, Poehlman ET. Energy expenditure and symptom severity in men with heart failure. *Am J Cardiol* 77: 1250-1252, 1996 [PMID: 8651109].
15. Donaldson KE, Carpenter WH, **Toth MJ**, Goran MI, Newhouse P, Poehlman ET. No evidence for a higher resting metabolic rate in non-institutionalized Alzheimer's disease patients. *J Am Geriatr Soc* 44: 1232-1234, 1996 [PMID: 8856004].
16. Fonong T, **Toth MJ**, Ades PA, Katzell LI, Calles-Escandon J, Poehlman ET. Relationship between physical activity and HDL-cholesterol in healthy older men and women: a cross-sectional and exercise intervention study. *Atherosclerosis* 127: 177-183, 1996 [PMID: 9125307].
17. **Toth MJ**, Fishman PS, Poehlman ET. Free-living daily energy expenditure in patients with Parkinson's disease. *Neurology* 48: 88-91, 1997 [PMID: 9008499].
18. Poehlman ET, **Toth MJ**, Ades PA, Calles-Escandon J. Gender differences in resting metabolic rate and noradrenaline kinetics in older individuals. *Eur J Clin Invest* 27: 23-28, 1997 [PMID: 9041373].
19. Nicklas BJ, **Toth MJ**, Goldberg AP, Poehlman ET. Racial differences in plasma leptin concentrations in obese postmenopausal women. *J Clin Endocrinol Metab* 82: 315-317, 1997 [PMID: 8989280].
20. **Toth MJ**, Gottlieb SS, Goran MI, Fisher ML, Poehlman ET. Daily energy expenditure in free-living heart failure patients. *Am J Physiol* 272: E469-E475, 1997 [PMID: 9124554].
21. Poehlman ET, **Toth MJ**, Goran MI, Carpenter WH, Newhouse P, Rosen CJ. Daily energy expenditure in free-living non-institutionalized Alzheimer's patients: a doubly labeled water study. *Neurology* 48: 997-1002, 1997 [PMID: 9109890].
22. **Toth MJ**, Gottlieb SS, Fisher ML, Ryan AS, Nicklas BJ, Poehlman ET. Plasma leptin concentrations and energy expenditure in heart failure patients. *Metabolism* 46: 450-453, 1997 [PMID: 9109853].
23. **Toth MJ**, Gottlieb SS, Fisher ML, Poehlman ET. Skeletal muscle atrophy and peak oxygen consumption in heart failure. *Am J Cardiol* 79: 1267-1269, 1997 [PMID: 9164902].
24. Nicklas BJ, **Toth MJ**, Poehlman ET. Daily energy expenditure is related to plasma leptin concentrations in older African-American women but not men. *Diabetes* 46: 1389-1392, 1997 [PMID: 9287036].
25. Goran MI, **Toth MJ**, Poehlman ET. Cross-validation of anthropometric and bio-electrical resistance prediction equations for body composition in older people using the 4-compartment model as a criterion method. *J Am Geriatr Soc* 45: 837-843, 1997 [PMID: 9215335].

26. Obisesan TO, **Toth MJ**, Poehlman ET. Prediction of resting energy needs in older men with heart failure. *Eur J Clin Nutr* 51: 678-681, 1997 [PMID: 9347288].
27. **Toth MJ**, Gottlieb SS, Fisher ML, Poehlman ET. Daily energy requirements in heart failure patients. *Metabolism* 46: 1294-1298, 1997 [PMID: 9361688].
28. Obisesan TO, **Toth MJ**, Ades PA, Poehlman ET. Central markers of body fat distribution are important predictors of plasma lipids in elderly men and women *Exp Gerontol* 32: 643-651, 1997 [PMID: 9785090].
29. Starling RD, **Toth MJ**, Carpenter WH, Matthews DE, Poehlman ET. Energy requirements and physical activity in free-living older women and men: a doubly labeled water study. *J Appl Physiol* 85: 1063-1069, 1998 [PMID: 9729584].
30. Carpenter WH, Fonong T, **Toth MJ**, Ades PA, Calles-Escandon J, Walston JD, Poehlman ET. Total daily energy expenditure in free-living older African-Americans and Caucasians. *Am J Physiol* 274: E96-101, 1998 [PMID: 9458753].
31. Goran MI, **Toth MJ**, Poehlman ET. Assessment of research-based body composition techniques in healthy elderly men and women using the 4-compartment model as a criterion method. *Int J Obes Relat Metab Disord* 22:135-142, 1998 [PMID: 9504321].
32. Starling RD, **Toth MJ**, Matthews DE, Poehlman ET. Energy requirements and physical activity of older free-living African-Americans: a doubly labeled water study. *J Clin Endocrinol Metab* 83: 1529-1534, 1998 [PMID: 9589650].
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3. Schulze PC, **Toth MJ**. Chapter 15: Alterations in skeletal muscle in heart failure. In: *Heart Failure: A Companion to Braunwald's Heart Disease*. 3<sup>rd</sup> ed. Mann DL (ed), Elsevier.

Other Scholarly Publications

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- 2005 Cooper BC, Sites CK, Fairhurst PA, **Toth MJ**. Ovarian hormone suppression decreases the thermogenic response to intravenous nutrients. *Fertil Steril* 84: S121, 2005.

- 2008 Miller MS, Shaw AO, Ward K, Moulton D, Ades P, Maughan DW, **Toth MJ**. Loss of myosin from single muscle fibers in heart failure patients reduces force production without altering myofilament ultrastructure. *The Physiologist* 51: 41, 2008.
- 2011 **Toth MJ**, Ward K, Miller MS, Matthews DE, VanBuren P, LeWinter MM, Ades PA. Circulating factors may contribute to muscle wasting in chronic heart failure by impairing the anabolic response to feeding. *Experimental Biology Annual Meeting*, 2011.
- 2011 **Toth MJ**, Ward K, Miller MS, VanBuren P, LeWinter MM, Ades PA. IGF-1/Akt/mTOR-GSK-3 $\beta$  signaling in skeletal muscle in human heart failure. *Experimental Biology Annual Meeting*, 2011.
- 2011 Miller MS, Braddock JM, Ward KA, VanBuren P, LeWinter MM, Ades PA, Maughan DW, Palmer BM, **Toth MJ**. Myosin-actin cross-bridge kinetics explain variation in single skeletal muscle fiber function in humans. *Experimental Biology Annual Meeting*, 2011.
- 2012 **Toth MJ**, Ward K, Miller MS, LeWinter MM, Matthews DE, Maughan DW, VanBuren P, Tchernof A, Ades PA. Physical disability in aging and chronic disease: the case for a selective myosin myopathy, McGill University Nutrition and Food Science Centre lecture series, January, 2012.
- 2012 **Toth MJ**, Ward K, Miller MS, LeWinter MM, Matthews DE, Maughan DW, VanBuren P, Tchernof A, Ades PA. Skeletal muscle myosin myopathy in aging and chronic disease: canary in the coal mine for physical disability. Center for Muscle Biology lecture series, University of Kentucky, College of Medicine, January, 2012.

**Patents Issues for Pending - none**

**Other Creative Activities - none**

**Quality Improvement and Patient Safety Activities – none**

#### SUMMARY OF SCHOLARLY ACTIVITIES

My laboratory focuses on studying the effects of aging and chronic disease on skeletal muscle structure, function and metabolism in humans, with the broad clinical goal of developing interventions to prevent the development of physical disability. Our work strives to understand the specific mechanisms underlying skeletal muscle dysfunction that leads to disability and to identify and test interventions to counteract these deficiencies that are targeted towards cellular/molecular dysfunction. The high level of my achievement in academic biomedical research is reflected in my publication and funding records. Regarding publications, I have maintained a high level of sustained productivity in my field, consistently publishing 5 manuscripts per year on average. I have published a total of 102 original manuscripts describing results from my research studies in high-quality, peer-reviewed journals, 14 scholarly reviews, 3 book chapters and have been contributing author to 2 international consensus statements. The H index for these publications is 32 and they have been cited a total of 3170 times. Regarding grant funding, I have been consistently funded by NIH throughout my entire tenure as a faculty member at UVM, having competed successfully for 8 R-series NIH awards and 1 K-series, career development award. This consistent, high level of research productivity underscores my high level of achievement in academic research.

INVITED PRESENTATIONS**Regional - none****National - none**

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|------|---|-----------------|
| 2000 | Division of Endocrinology, Department of Medicine, University of Pittsburgh<br>"Menopause-related differences in body composition and insulin sensitivity."   | Pittsburgh, PA  |
| 2000 | Obesity Research Center Lecture Series. St. Luke's Roosevelt Hospital, Columbia University<br>"Effect of the menopause transition on body composition and metabolic function. "   | New York, NY    |
| 2001 | Human Nutrition Research Center Lecture Series. Department of Medicine, University of Colorado Health Sciences Complex<br>"Effect of ovarian hormones on body composition, insulin sensitivity and protein metabolism."   | Denver, CO      |
| 2003 | Division of Gerontology Grand Rounds, Department of Medicine, University of Colorado Health Sciences Center<br>"Ovarian hormone deficiency: physiological effects and therapeutic controversy."   | Denver, CO      |
| 2004 | Society for Geriatric Cardiology: PRICE III Symposium in association with the American Heart Association Annual Meeting<br>"Role of nutrition in the pathogenesis and treatment of heart failure in the elderly."   | New Orleans, LA |
| 2012 | Center for Muscle Biology lecture series, University of Kentucky, College of Medicine<br>"Skeletal muscle myosin myopathy in aging and chronic disease: canary in the coal mine for physical disability."   | Lexington, KY   |
| 2012 | Advances in Skeletal Muscle Biology in Health and Disease Program Meeting.<br>"Resistance training alters skeletal muscle structure and function in human heart failure: effects at the tissue, cellular and molecular levels."   | Gainesville, FL |
| 2012 | <i>Cancer cachexia: Molecular mechanisms and therapeutic approaches.</i> Meeting of the Society on Sarcopenia, Cachexia and Wasting Disorders.<br>"Molecular mechanisms underlying reduced knee extensor function and walking endurance in cancer patients: diminished myosin-actin cross-bridge kinetics." | Boston, MA      |
| 2015 | Department of Kinesiology, University of Massachusetts at Amherst<br>"Muscle disuse as a facilitator of age- and disease-related disability: a simple answer to a complex question."  | Amherst, MA     |

**International**

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| 1998 | International Symposium on Current Developments in the Evaluation and Treatment of Malnutrition.<br>"Nutritional alterations in chronic cardiac disease" | Huntington Beach, CA |
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| 1999 | International Dietary Energy Consultancy Group Workshop on Impact of Human Aging on Energy and Protein Metabolism in the Elderly.<br>"Lipid metabolism in the elderly."  | Boston, MA       |
| 1999 | International Symposium on <i>In Vivo</i> Body Composition Studies, Brookhaven National Laboratories.<br>"Menopause-related changes in body fat distribution. "  | Long Island, NY  |
| 2005 | Presentation to the Center for Molecular Endocrinology and Oncology.<br>"Do ovarian hormones control muscle size in women? "   | Quebec, Canada   |
| 2013 | European Respiratory Society.<br>"Role of physical activity in determining age-related phenotypes."  | Barcelona, Spain |
| 2014 | <i>Cancer cachexia: Molecular mechanisms and therapeutic approaches</i> . Meeting of the Society on Sarcopenia, Cachexia and Wasting Disorders.<br>"Myofilament protein content and muscle function in cancer patients." | Montreal, Canada |
| 2016 | Society for Cachexia and Wasting Disorders – International Cachexia Conference<br>"The effect of exercise on cancer cachexia outcomes: current evidence from clinical and pre-clinical studies."                         | Berlin, Germany  |