CURRICULUM VITAE

Lori Lynn Ploutz-Snyder, Ph.D.
Lead Scientist, Exercise Physiology and Countermeasures
Universities Space Research Association
NASA Johnson Space Center
2101 NASA Parkway SK3, B261
Houston, TX 77058

EDUCATIONAL BACKGROUND

Post-doctoral Research - Department of Physiology - advisor Dr. Ronald Meyer
Michigan State University 1994-1996

Ph.D. - Department of Biological Sciences – advisor Dr. Gary Dudley
Ohio University, June 1994

M.S. – Department of Zoological & Biomedical Sciences – advisor Dr. Fredrick Hagerman
Ohio University, August 1989

B.S. in zoology – Honors Tutorial College
Ohio University, August 1989

FIELDS OF STUDY

Undergraduate: Biology
Graduate: Physiology, skeletal muscle, exercise

THESES

Bachelors/Masters *Cardiovascular and Metabolic Adaptations to Hyperoxic Training*

Ph.D. *Muscle Mass Involvement in Exercise Following Prolonged Periods of Use and Disuse*

LEADERSHIP & PROFESSIONAL TRAINING

Dynamics of Daily Negotiation - January 2011
Communication Skills For The Technical Professional - January 2011
Challenges Facing the Technical Leader – January 2011
Leadership Principles For Today's Professional – April 2011
Media Training - October 2011
Project Management – March 2012
Effectiveness for Team Leadership and Communication - July 2012
NASA Science Management Training – September 2013

TEACHING & ADMINISTRATIVE EXPERIENCE

6/13 to present Musculoskeletal Alterations Team Leader, National Space Biomedical Research Institute, Baylor College of Medicine, Houston TX

12/08 to present Lead Scientist, Exercise Physiology and Countermeasures Project, National Aeronautics and Space Administration, Johnson Space Center & Universities Space Research Association. Houston, TX.

7/10 to present Adjunct Full Professor, Division of Endocrinology, Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX

6/09 to present Adjunct Full Professor, Department of Health and Human Performance, University of Houston, Houston, TX.

9/08 to 12/08 Exercise Physiology Lead, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association. Houston, TX.

1/08 to present Professor, Department of Exercise Science, Syracuse University

5/04 to 5/08 *Chair*, Department of Exercise Science, Syracuse University

7/01 to 12/07 *Associate Professor*, Department of Exercise Science, Syracuse University

4/96 to present	*Adjunct Assistant Professor*, Department of Neuroscience and Physiology, State University of New York Upstate Medical University, Syracuse, NY
1/96 to 7/01	*Assistant Professor*, Department of Exercise Science, Syracuse University
9/95 to 12/95	*Assistant Professor*, Department of Biological Sciences, Ohio University
9/94 to 6/95	*Instructor*, Department of Biological Sciences, Ohio University
1/90 to 8/90	*Project and Curriculum Assistant*, National Aeronautics and Space Administration Space Life Science Training Program, The Bionetics Corporation, Kennedy Space Center, Florida
9/89 to 1/90	*Teaching Assistant*, School of Kinesiology, Simon Fraser University, Burnaby, British Columbia, Canada
9/86 to 6/88 and 9/90 to 6/91	*Teaching Assistant*, College of Osteopathic Medicine, Department of Zoological and Biomedical Sciences, Ohio University
9/88 to 6/89	*Physiology Tutor*, College of Osteopathic Medicine, Ohio University

SUBJECTS TAUGHT

Undergraduate	Human Physiology (lecture and laboratory), Exercise Physiology (laboratory), Gravitational Physiology (lecture and laboratory), Contemporary Canadian Health Issues (lecture), Exercise Testing and Interpretation (lecture and laboratory), Exercise Prescription in Health and Disease, Motor Learning, Pathophysiology
Graduate and Professional	Didactic course for residents in Physical Medicine and Rehabilitation, Exercise Physiology (laboratory), Medical Physiology (tutor), Exercise Testing and Interpretation (lecture and laboratory), Exercise Prescription in Health and Disease, Skeletal Muscle Physiology, Pathophysiology, Current Literature In Exercise and Sport Science, Space Physiology

Courses developed

Didactic course for residents in Physical Medicine and Rehabilitation
Gravitational Physiology (lecture and laboratory)
Pathophysiology
Skeletal Muscle Physiology
Exercise Testing and Interpretation (lecture and laboratory)
Motor Control and Learning
Exercise Prescription in Health and Disease

GRADUATE STUDENT RESEARCH ADVISING

Students are from Syracuse University unless otherwise indicated.

M.S. Thesis Chair
Andrew Kelleher
Eric Coellen
Jesse Lloyd
Nina Bermudez
Summer Baldwin
Brian Clark
Todd Manini
Elizabeth Yackel-Giamis
Lynn Fennechia
Craig Holt
Jill Nappi

M.S. Thesis Committee

Seung Ho Jung
Brian Weil
Jessica Mistretta
Erin Kelly
Joe Pierce
Brian Pearson
Scott Collier
Ciji Miller
Lynn Sauro
Kristi Palmaccio
Li Yi-Hua
John Mayer
Ciji Miller
Cheri Alverado
George Mochizuki

Ph.D. Dissertation Chair

John Mayer – awarded 2001 doctoral prize at Syracuse University
Todd Manini – awarded 2005 doctoral prize at Syracuse University
Brian Clark – awarded 2006 doctoral prize at Syracuse University
Moshe Marko
Summer Cook – NASA GSRP

Lynne Logan – Rocky Mountain State University
Kyle Hackney – NASA GSRP
Meghan Everett – University of Houston, research advisor

Ph.D. Dissertation Committee

Fenia Giannopoulou
Tracy Baynard
Ruth Franklin
Christopher Fry – University of Texas Medical Branch
David Gundermann – University of Texas Medical Branch

Ph.D. Chair of Dissertation Defense

Laurie Witzel
Joanne Scandale
Brian Marguilles
Andrew Campbell

RESEARCH POSITIONS

1/12 to present **NASA Lead Scientist,** Exercise Physiology and Countermeasures National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association. Houston, TX.

1/09 to 1/12 Project Scientist, Project, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association. Houston, TX.

9/08 to 12/08 Exercise Physiology Lab Lead, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association. Houston, TX.

8/01 to 9/08	Research Associate Professor, Department of Physical Medicine and Rehabilitation, Upstate Medical University, Syracuse, NY
1/98 to present	Senior Research Associate, Maxwell Center for Policy Research, Syracuse University, Syracuse, NY
8/97 to 9/08	Director, Musculoskeletal Research Laboratory, Syracuse University, Syracuse, New York
7/95 to 7/96	Visiting Scholar, Department of Physiology, Michigan State University, East Lansing, Michigan
4/94 to 7/95	Research Associate, Department of Physiology, Michigan State University, East Lansing, Michigan
9/91 to 4/94	National Aeronautics and Space Administration Graduate Student Researchers Program, Ohio University and Kennedy Space Center, Florida
1/90 to 8/90	National Aeronautics and Space Administration Space Life Sciences Training Program, Kennedy Space Center, Florida

PUBLICATIONS IN PEER REVIEWED JOURNALS

Koppelmans V, Mulavara AP, Peng Y , Cassady KE, Cooke KA, Wood SJ, Reuter-Lorenz PA, De Dios YE, Stepanyan V, Szecsy DL, Gadd NE, Kofman I, Scott JM, Downs ME, Bloomberg JL, PLOUTZ-SNYDER LL , Seidler RD. Exercise as potential countermeasure for the effects of 70 days of bed rest on cognitive and sensorimotor performance. *Frontiers in Systems Neuroscience*, accepted 2015.

Hackney, K, JM Scott, AM Hanson, KL English, M Downs, LL PLOUTZ-SNYDER. The Astronaut-Athlete: Optimizing Human Performance In Space. *Journal of Strength and Conditioning Research* accepted 2015.

Petersen N, Thieschäfer L, PLOUTZ-SNYDER L, Damann V, Mester J. Reliability of a new test battery for fitness assessement of the European Astronaut corps. *Extreme Physiology & Medicine* 2015, **4** :12 (14 August 2015)

PLOUTZ-SNYDER, LL, S Bloomfield, SM. Smith, SK Hunter, K Templeton, D Bemben. Effects of Sex and Gender on Adaptation to Space: Musculoskeletal Health. *Journal of Women's Health*, 23(11):963-6, 2014.

Moore AD, Downs ME, Lee SM, Feiveson AH, Knudsen P, PLOUTZ-SNYDER LL. Peak Exercise Oxygen Uptake During and Following Long-Duration Spaceflight. *Journal of Applied Physiology*, 117:231-8, 2014. This article was featured on APS Select as the most outstanding article of the month from JAP.

Downs ME, Hackney KJ, Martin D, Caine TL, Cunningham D, O'Connor DP, PLOUTZ-SNYDER LL. Acute Vascular and Cardiovascular Responses to Blood Flow-Restricted Exercise. *Medicine and Science In Sports And Exercise*. Aug;46(8):1489-97, 2014. This article was featured on an ACSM hot topics as an outstanding article of the month from MSSE.

Scott JM, Hackney K, Downs M, Guined J, Ploutz-Snyder R, Fiedler J, Cunningham D, PLOUTZ-SNYDER LL. The metabolic cost of an integrated exercise program performed during 14 days of bed rest. *Aviation Space and Environmental Medicine*. Jun;85(6):612-7, 2014.

De Witt, JK and LL PLOUTZ-SNYDER. Ground reaction forces during treadmill running in microgravity. *Journal of Biomechanics*, 18:47(10):2339-47, 2014.

De Witt JK, Schaffner G, PLOUTZ-SNYDER LL. Bungee force level, stiffness, and variation during treadmill locomotion in simulated microgravity. *Aviation Space and Environmental Medicine*. Apr;85(4):449-55, 2014.

Cook, SB, JA Kanaley, LL PLOUTZ-SNYDER. Neuromuscular function following muscular unloading and blood flow restricted exercise. *European Journal of Applied Physiology*, 114(7):1357-65, 2014.

PLOUTZ-SNYDER LL, Downs M, Ryder J, Hackney K, Scott J, Buxton R, Goetchius E, Crowell B. Integrated Resistance and Aerobic Exercise Protects Fitness during Bed Rest. *Medicine and Science In Sports And Exercise.* Feb;46(2):358-68, 2014.

Sheffield-Moore M, Wiktorowicz JE, Soman KV, Danesi CP, Kinsky MP, Dillon EL, Randolph KM, Casperson SL, Gore DC, Horstman AM, Lynch JP, Doucet BM, Mettler JA, Ryder JW, PLOUTZ-SNYDER LL, Hsu JW, Jahoor F, Jennings K, White GR, McCammon SD, Durham WJ. Sildenafil increases muscle protein synthesis and reduces

muscle fatigue. *Clinical and Translational Science*. Dec;6(6):463-8, 2013.

Hackney, KL, Kelleher, A and LL PLOUTZ-SNYDER Amino Acid-Carbohydrate Intake Combined With Multiple Bouts of Resistance Exercise Increases Resting Energy Expenditure. *ISRN Nutrition*, accepted 2013.

Ryder, JW, R. Buxton, E Goetchius, M Scott-Pandorf, K. Hackney, J Fiedler, RJ Ploutz-Snyder, JJ Bloomberg, LL PLOUTZ-SNYDER. Influence of Muscle Strength to Weight Ratio on Functional Task Performance. *European Journal of Applied Physiology*, 113(4):911-21, 2013.

Mayer, J, JE Graves, TM Manini, JL Nuzzo, and LL PLOUTZ-SNYDER. Lumbar Muscle Activity During Common Lifts: A Preliminary Study Using Magnetic Resonance Imaging. *Journal of Applied Biomechanics*, 29(2):147-54, 2013.

Hackney, KJ, M Everett, JM Scott and LL PLOUTZ-SNYDER. Blood Flow Restricted Exercise In Space. *Extreme Physiology and Medicine*, 1:12, December 2012.

English, KL, S Lee, JA Loehr, RJ Ploutz-Snyder, and LL PLOUTZ-SNYDER. Isokinetic Strength Changes Following Long-Duration Space Flight on the International Space Station. *Aviation Space and Environmental Medicine*, submitted 2012.

Marko, M, M Prince, C Neville, and LL PLOUTZ-SNYDER. Lower Extremity Force Decrements Identify Early Mobility Decline Among Community Dwelling Older Adults. *Physical Therapy Journal*, 92(9):1148-59, 2012.

Hackney, KJ, SB Cook, TJ Fairchild and LL PLOUTZ-SNYDER. Skeletal Muscle Volume Following Dehydration Induced By Exercise in Heat. *Extreme Physiology and Medicine*, 1:3, Sept 2012.

Smith SM, MA Heer, L Shackelford, J Sibonga, L PLOUTZ-SNYDER, SR Zwart. Benefits for Bone From Resistance Exercise and Nutrition in Long-Duration Spaceflight: Evidence From Biochemistry and Densitometry. *Journal of Bone and Mineral Research*, 27(9):1896-906, 2012.

Scott JM, Martin DS, Ploutz-Snyder R, Caine T, Matz T, Arenzo NM, Buxton R, PLOUTZ-SNYDER LL. Reliability and Validity of Panoramic Ultrasound for Long-Duration Spaceflight. *Ultrasound in Medicine and Biology*, Sep;38(9):1656-61, 2012.

English, KL, KJ Hackney, JK De Witt, R Ploutz-Snyder, ER Goetchius, and LL PLOUTZ-SNYDER. A ground-based comparison of the muscle atrophy research and exercise systems (MARES) and a commercially available isokinetic dynamometer. *Acta Astronautica*, 92:3-9, 2013.

Hackney, KJ and LL PLOUTZ-SNYDER. Unilateral lower limb suspension: integrative physiological knowledge form the past 20 years (1991-2011). *European Journal of Applied Physiology*, 112(1):9-22, 2012.

Hackney, KJ, SB Cook, and LL PLOUTZ-SNYDER. Nutrition and Resistance Exercise During Reconditioning From Unloading. *Aviation, Space and Environmental Medicine*. 82:805-809, 2011.

Franklin RM, NM Szeverenyi, LL PLOUTZ-SNYDER, JA Kanaley. Intramyocellular Lipid Content after an Acute Resistance Exercise Bout in Younger and Older Obese and Non-obese Women. *Gerontology*, in review.

Cowley PM, Ploutz-Snyder LL, Baynard T, Heffernan KS, Young Jae S, Hsu S, Lee M, Pitetti KH, Reiman MP, Fernhall B.The effect of progressive resistance training on leg strength, aerobic capacity and functional tasks of daily living in persons with Down syndrome. *Disability and Rehabilitation Research*. 25(2):545-55, 2011.

Cook, SB, Druger, M, LL PLOUTZ-SNYDER. Scientific literacy and attitudes towards American space exploration among college undergraduates. *Space Policy*. 27(1):48-52, 2011.

Spiering, BA, SMC Lee, AP Mulavara, JR Bentley, RE Buxton, EL Lawrence, J Sinka, ME Guilliams, LL PLOUTZ-SNYDER, and JJ Bloomberg. Test battery designed to quickly and safely assess diverse indices of neuromuscular function after unweighting. *Journal of Strength and Conditioning Research*. 25(2):545-555, 2011.

Cook SB, Brown KA, Deruisseau K, Kanaley JA, Ploutz-Snyder LL. Skeletal muscle adaptations following blood flow-restricted training during 30 days of muscular unloading. *J Appl Physiol.* Aug;109(2):341-9. 2010

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Kelleher AR, Hackney KJ, Fairchild TJ, Keslacy S, PLOUTZ-SNYDER LL. The metabolic costs of reciprocal supersets vs. traditional resistance exercise in young recreationally active adults. Journal of Strength and Conditioning Research. 24(4):1043-51, 2010.

PM Cowley, LL PLOUTZ-SNYDER, T Baynard, K Heffernan, SY Jae, S Hsu, M Lee, KH Pitetti, MP Reiman, B Fernhall. Physical Fitness Predicts Functional Tasks in Individuals with Down syndrome. *Medicine and Science In Sports and Exercise*, 42(2):399-93, 2010.

Baynard, T., RL Carhart, LL PLOUTZ-SNYDER, R Weinstock, JA Kanaley. Short-Term Exercise Training Improves Aerobic Capacity With No Change in Arterial Function in Obesity. *European Journal of Applied Physiology*, 107(3):299-308, 2009.

Soares-Caldeira LF, Ritti-Dias RM, Okuno NM, Cyrino ES, Gurjão AL, PLOUTZ-SNYDER, LL. Familiarization indexes in sessions of 1-RM tests in adult women. *Journal of Strength and Conditioning Research*. 23(7):2039-45, 2009.

Franklin, RM, LL PLOUTZ-SNYDER and JA Kanaley. Longitudinal changes in abdominal fat distribution with exercise. *Metabolism Clinical and Experimental* 58: 311–315, 2009.

Cowley, PM, BC Clark and LL PLOUTZ-SNYDER. Kinesthetic motor imagery and spinal excitability: the effect of contraction intensity and spatial localization. *Clinical Neurophysiology*, 119(8):1849-56, 2008.

Baynard, T, RL Carhart, LL PLOUTZ-SNYDER, RS Weinstock, JA Kanaley. Short-term Training Effects on Diastolic Function in Obese Persons with the Metabolic Syndrome, *Obesity*, Jun;16(6):1277-83, 2008.

Cook, SB, BC Clark, and LL PLOUTZ-SNYDER. Effects of exercise load and blood flow restriction on skeletal muscle function. *Medicine and Science in Sports and Exercise*, 39(10):1708-13, 2007 .

Manini, T, M Marko, T Vanarnam, S Cook, B Fernhall, J Burke, and LL PLOUTZ-SNYDER. Efficacy of resistance and task-specific exercise in older adults. *Journals of Gerontology: Biological Science and Medical Science*. 62(6):616-23, 2007.

Clark, BC, TM Manini, and LL PLOUTZ-SNYDER. Fatigue-induced changes in phasic muscle activation patterns during dynamic trunk extension exercise. *American Journal of Physical Medicine and Rehabilitation*. 86(5):373-9, 2007.

Clark, BC., Summer B. Cook and LL PLOUTZ-SNYDER. Reliability of techniques to assess human neuromuscular function *in vivo. Journal of Electromyography and Kinesiology,* 17:90-101, 2007.

JA Kanaley, I Giannopoulou, LL PLOUTZ-SNYDER. Regional differences in abdominal fat distrubution. *International Journal of Obesity*, 31(1): 145-52, 2007.

LL PLOUTZ-SNYDER, BC Clark, L Logan, M Turk. Evaluation of spastic muscle in stroke survivors using MRI and resistance to passive motion. *Archives of Physical Medicine and Rehabilitation*, 87(12): 1636-42 2006.

Pierce, JR, BC Clark, LL PLOUTZ-SNYDER, JA Kanaley. Growth hormone and muscle function responses to skeletal muscle ischemia. *Journal of Applied Physiology*, 101(6):1588-95, 2006.

Clark, BC, JR Pierce, TM Manini, and LL Ploutz-Snyder. Effect of prolonged unweighting of human skeletal muscle on neuromotor control. *European Journal of Applied Physiology*, 100(1):53-62, 2007.

TM Manini, BC Clark, MA Nalls, BH Goodpaster, LL Ploutz-Snyder, TB Harris. Reduced physical activity increases inter-muscular adipose tissue. *American Journal of Clinical Nutrition*, 85(2):377-84, 2007.

TM Manini, SB Cook, T VanArnam, M Marko, and LL PLOUTZ-SNYDER. Evaluating task modification as a standardized measure of functional limitation: repeatability and comparability. *Journals of Gerontology: Biological and Medical Sciences*, 61(7):718-25, 2006.

SB Cook, BC Clark, and LL PLOUTZ-SNYDER. Accelerometry as a measure of subject compliance in unilateral lower limb suspension. *Aviation Space and Environmental Medicine*,.77(9):953-6, 2006.

BC Clark, B Fernhall and LL PLOUTZ-SNYDER. Adaptations in human neuromuscular function to prolonged unweighting. Part I: Contractile Properties. *Journal of Applied Physiology*. 101(1): 256-63, 2006.

BC Clark, TM. Manini, SJ Bolanowski, and LL PLOUTZ-SNYDER. Adaptations in human neuromuscular function to prolonged unweighting. Part II: Neural Properties. *Journal of Applied Physiol*ogy. 101(1): 264-72, 2006.

NR Ordway, N Hand, G Briggs, LL PLOUTZ-SNYDER. Reliability of Knee and Ankle Strength Measures in an Older Adult Population. *Journal of Strength and Conditioning Research*, 20(1) 82-7, 2006.

TM Manini, BC Clark, B Tracy, J Burke, and LL PLOUTZ-SNYDER. Resistance and functional training reduces knee extensor fluctuations in functionally limited older adults. *European Journal of Applied Physiology*, 95(5-6):436-46, 2005.

TM Manini, JM Mayer, KS Sagendorf and LL PLOUTZ-SNYDER. Trunk extensor muscle function in young and old women: a pilot study. *Journal of Back and Musculoskeletal Rehabilitation*, 18:5-13, 2005.

JM Mayer, JE Graves, BC Clark, M Formikell, and LL PLOUTZ-SNYDER. The Use of Magnetic Resonance Imaging to Evaluate Lumbar Muscle Activity During Trunk Extension Exericse at Varying Intensities. *Spine*, 39(22): 2556-63, 2005.

T Manini, M Druger, and LL PLOUTZ-SNYDER. Misconceptions of strength exercise in the elderly. *Journal of Physical Activity & Aging*, 13:422-33, 2005.

BC. Clark, SR. Collier, TM. Manini, and LL. PLOUTZ-SNYDER Sex Differences in Muscle Fatigability and Activation Patterns of the Human Quadriceps Femoris. *European Journal of Applied Physiology*, 94:196-206, 2005.

TM Manini, SB Cook, NR Ordway, RJ Ploutz-Snyder, and LL PLOUTZ-SNYDER. Knee extensor unsteadiness does not predict functional limitation in older adults. *American Journal of Physical Medicine & Rehabilitation*, Feb;84(2):112-121, 2005.

Giannopoulou, I, LL PLOUTZ-SNYDER, R Carhart, RS Weoinstock, B Fernhall, S Goulopoulou, and JA Kanaley. Exercise is required for visceral fat loss in postmenopausal women with type 2 diabetes. *Journal of Clinical Endocrinology and Metabolism*. 90(3):1511-8, 2005.

Clark, BC, TM Manini, NR Ordway and LL PLOUTZ-SNYDER. Leg muscle activity during walking with assistive devices at varying levels of weight bearing. *Archives of Physical Medicine and Rehabilitation*. 85 (9): 1555-1560, 2004.

LM Fenicchia, JA Kanaley, JL Azevedo, CS Miller, RS Weinstock, RL Carhart, and LL PLOUTZ-SNYDER. Acute changes in glucose tolerance after resistance exercise training in women with type 2 diabetes. *Metabolism*, 53:284-9, 2004.

JM Mayer, LL PLOUTZ-SNYDER, JE. Graves, BE. Udermann, Ph.D, and M Druger. Exercise Therapy for Low Back Pain: Chiropractors' Patterns of Use and Perceptions of Educational Quality. *Journal of Chiropractic Education*. 17(2):1-8, 2003.

The, DJ and LL PLOUTZ-SNYDER. Influence of age, body mass, and gender on masters olympic-style weightlifting. *Medicine and Science in Sports and Exercise*. 35(7):1214-24, 2003.

JM Mayer, BE Udermann, JE Graves, LL PLOUTZ-SNYDER. Effect of roman chair exercise training on the development of lumbar extension strength. *Journal of Strength and Conditioning Research*, 17(2):356-61, 2003.

BC Clark, TM Manini, DJ The, N Doldo, LL PLOUTZ-SNYDER. Gender differences in skeletal muscle fatigability are related to contraction type and EMG spectral compression. *Journal of Applied Physiology*, 94(6):2263-2272, 2003.

BC Clark, TM Manini, LL PLOUTZ-SNYDER. Derecruitment of the lumbar musculature with fatiguing trunk extension exercise. *Spine*, 28(3):282-7, 2003.

JA Kanaley, I Giannopoulou, G Tillapaugh-Fay, JS Nappi, and LL PLOUTZ-SNYDER. Racial differences in subcutaneous and visceral fat distribution in postmenopausal black and white women. *Metabolism*, 52(2): 186-91, 2003.

JM Mayer, JE Graves, BE Udermann, LL PLOUTZ-SNYDER. Development of lumbar extension strength: effect of pelvic stabilization during resistance training. *Journal of Back and Musculoskeletal Rehabilitation,* 16:25-31, 2002.

JM Mayer, JE Graves, BE Udermann, LL PLOUTZ-SNYDER. Quantification of the loading characteristics of the upper body and back extension strength on a variable angle Roman chair. *Journal of Back and Musculoskeletal Rehabilitation,* 16:95-104, 2002.

BC. Clark, TM. Manini, JM. Mayer, LL Ploutz-Snyder, JE Graves. Electromyographic activity of the lumbar and hip extensors during dynamic trunk extension exercise. *Archives of Physical Medicine and Rehabiltation*, 83:1547-52, 2002.

LL PLOUTZ-SNYDER, T Manini, RJ Ploutz-Snyder, and DA Wolf. Functionally relevant thresholds of quadriceps femoris strength. *Journals of Gerontology: Series A, Biological and Medical Sciences*, 57:B144-B152, 2002.

PLOUTZ-SNYDER, LL and E Yackel. Orientation and familiarization to 1 RM strength testing in old and young women. *Journal of Strength and Conditioning Research*, 15(4):519-23, 2001.

J.A. Kanaley, L.M. Fenicchia, C.S. Miller, LL PLOUTZ-SNYDER, R.S. Weinsotck, R. Carhart, J.L. Azevedo, Jr. Resting leptin responses to acute and chronic resistance training in type 2 diabetic men and women. *International Journal of Obesity*, 25:1474-80, 2001.

Udermann, B., Mayer, J., Graves, J., and Ploutz-Snyder, L. Inter investigator variability during isometric lumbar extension dynamometer. International Sports Journal, 5(2), 118-22, Summer 2001.

LL PLOUTZ-SNYDER, EL Giamis, M Formikell, and AE Rosenbaum. Resistance training reduces susceptibility to eccentric exercise-induced muscle dysfunction in older women. *Journals of Gerontology: Series A, Biological and Medical Sciences*, 56A:9, B384-B390, 2001.

J.A.Kanaley, C. Sames, L. Swisher, A.G. Swick, LL PLOUTZ-SNYDER, C.M. Steppan, K.S. Sagendorf, D. Feiglin, E.B. Jaynes, R.S. Weinstock. Abdominal fat distribution, blood lipids and leptin concentration in pre and postmenopausal women. *Metabolism*, 50:8, 976-982, 2001.

BM Prior, LL PLOUTZ-SNYDER, TG Cooper, and RA Meyer. Fiber type and metabolic dependence of T2 increases in stimulated rat muscles. *Journal of Applied Physiology*, 90:615-623, 2001.

LL PLOUTZ-SNYDER, E Yackel, AE Rosenbaum, and M Formikell. Use of muscle functional MRI with older individuals. *Journals of Gerontology: Series A, Biological and Medical Sciences,* 55A(10):B504-B511, 2000.

Vandenborne, K., G. Walter, L PLOUTZ-SNYDER, G. Dudley, M. Elliott, K. DeMeirleir. Relationship between muscle T_2* relaxation properties and metabolic state: a combined localized ^{31}P-spectroscopy and ^{1}H-imaging study. *European Journal of Applied Physiology*. 82:76-82, 2000.

Mayer, JM, JE Graves, VL Robertson, EA Pierra, JL Verna, and LL PLOUTZ-SNYDER. Electromyographic activity of the lumbar extensor muscles: effect of angle and hand position during roman chair exercise. *Archives of Physical Medicine and Rehabilitation* 80: 751-5, 1999.

Udermann BE, Graves JE, Donelson RG, PLOUTZ-SNYDER, LL, Boucher JP, Iriso JH. Pelvic restraint effect on lumbar gluteal and hamstring muscle electromyographic activation. *Archives of Physical Medicine and Rehabilitation*. 80(4):428-31, 1999.

PLOUTZ-SNYDER, L.L., J. Foley, R. Ploutz-Snyder, J. Kanaley, K. Sagendorf, and R. Meyer. Gastric gas and fluid emptying assessed by magnetic resonance imaging in humans. *European Journal of Applied Physiology*, 79:212-220, 1999.

PLOUTZ-SNYDER, L.L., P.A. Tesch, and G.A. Dudley. Increased vulnerability to eccentric exercise induced dysfunction and muscle injury after concentric training. *Archives of Physical Medicine and Rehabilitation*,, 79(1):58-61, 1998.

Tesch, P.A., PLOUTZ-SNYDER, L.L, Yström, L, Castro, M.J. and G.A. Dudley. Skeletal muscle glycogen loss evoked by resistance exercise. *Journal of Strength and Conditioning Reserach* 12(2):67-73, 1998.

PLOUTZ-SNYDER, L.L., S. Nyren, T.G. Cooper, E.J. Potchen, and R.A. Meyer. Different effects of exercise and edema on T2 relaxation in skeletal muscle. *Magnetic Resonance in Medicine*, 37:676-682, 1997.

Ludman, C.N., T.G. Cooper, L.L. PLOUTZ-SYNDER, E.J. Potchen, and R.A. Meyer. Force of voluntary exercise does not affect sensorimotor cortex activation as detected by functional MRI at 1.5 T. *NMR Biomed.* 9(5):228-32, 1996.

Conley, M. S., J.M. Foley, L.L. PLOUTZ-SNYDER, R. A. Meyer and G. A. Dudley. Effect of acute head-down tilt on skeletal muscle cross-sectional area and proton transverse relaxation time. *Journal of Applied Physiology*, 81:1572-1577, 1996.

PLOUTZ-SNYDER, L.L., P.A. Tesch, B.M. Hather and G.A. Dudley. Vulnerability to dysfunction and muscle injury after unloading. *Archives of Physical Medicine and Rehabilitation*, 77:773-7, 1996.

PLOUTZ-SNYDER, L.L., J.A. Simoneau, R.M. Gilders, R.S. Staron, and F.C. Hagerman. Cardiorespiratory and metabolic adaptations to hyperoxic training. *European Journal of Applied Physiology*., 73:38-48, 1996.

PLOUTZ-SNYDER, L.L., V.A. Convertino, and G.A. Dudley. Resistance exercise induced fluid shifts: Change in active muscle size and plasma volume. *American*

Journal of Physiology: Regulatory, Integrative, and Comparative Physiology 38:R536-R543, 1995.

PLOUTZ-SNYDER, L.L., P.A. Tesch, D. Crittenden, and G.A. Dudley. Effect of unweighting on muscle mass involvement in exercise. *Journal of Applied Physiology,* 79(1): 168-75, 1995.

Vandenborne, K., G. Walter, L. PLOUTZ-SNYDER, R. Staron, A. Fry, K. DeMeirleir, G. Dudley, and J.S. Leigh. Energy rich phosphates in slow and fast twitch human skeletal muscle. *American Journal of Physiology: Cell Physiology*, 268 (37): C869-C876, 1995.

PLOUTZ, L.L., P.A. Tesch, R.L. Biro, and G.A. Dudley. Effect of resistance training on muscle mass involvement in exercise. *Journal of Applied Physiology* 76:1675-1681, 1994.

P.A. Tesch, L.L. PLOUTZ, and GA Dudley. Effects of 5 weeks of lower limb suspension on muscle size and strength. *Journal of Gravitational Physiology* 1:P59-60, 1994.

PLOUTZ, L.L., D.L. Tatro, G.A. Dudley, and V.A. Convertino. Plasma volume and baroreflex responsiveness during 24 hours following resistance exercise. *Clinical Physiology* 13:429-438, 1993.

OTHER PUBLICATIONS

English, KL, KJ Hackney, E Redd, J K DeWitt, R Ploutz-Snyder, LL PLOUTZ-SNYDER. A Ground-based Comparison of the Muscle Atrophy Research and Exercise System (MARES) and a Standard Isokinetic Dynamometer. *National Aeronautics and Space Administration (NASA) Technical Paper*-2011-216144, 2011.

INVITED PRESENTATIONS

Highlights From ISS Preliminary results from NASA's Sprint Study: Exercise prescription for protection of VO_2-max and muscle strength. Humans In Space, Prague, Czech Republic, June 2015.

International Space Medicine Summit. Rice University, Houston, TX. Invited panelist for Use of Spaceflight Analogs in Research, June 2015.

NSBRI Symposium Towards Integrated Countermeasures for Deep Space Exploration: Vestibular Function for Balance and Beyond. Exercise Countermeasures, May 2015

Ohio University Honors Tutorial College Golos Lecture Series., Athens, OH. Human Mission To Mars: Barriers to Long Duration Spaceflight, October 2012.

European Space Agency, Noordwijk, The Netherlands. Bed Rest Strategic Planning Meeting. Exercise Countermeasures During Long Duration Bed Rest, April 2012.

Cleveland Clinic, Cleveland, OH. Current Topics In Space Medicine Lecture Series. Exercise Countermeasures on the ISS: Integrated Resistance and Aerobic Training. August 2011.

Regeneron Pharmaceuticals, Tarrytown, NY. Muscle Atrophy Research. Analogs, Evaluation and Prevention Strategies. March 2011.

National Strength and Conditioning Association, Orlando, FL. Gary A Dudley Memorial Lecture. Plasticity of Skeletal Muscle at the Extremes: Spaceflight to Elite Performance, July 2010.

American College of Sports Medicine, Baltimore, MD. Exercise countermeasures for the maintenance of fitness during long duration spaceflight. Symposium, June 2010.

Commencement speaker, School of Education, Syracuse University, Syacuse, NY May 2010.

National Strength and Conditioning Association, Las Vegas, NV. Symposium: Efficacy of blood flow restricted exercise. July 2009.

American College of Sports Medicine, Seattle, WA. Symposium: Efficacy, Safety, and Mechanisms of Blood Flow Restricted Exercise, June 2009.

Texas A&M University, College Station, TX. Space life sciences seminar series, 2 seminars, Neuromuscular adaptations to disuse and Prevention of muscle atrophy with exercise countermeasures. January 28-29, 2009.

University of Houston, Houston, TX. Department of Health and Human Performance seminar series. Neuromuscular adaptations to reduced use. March 9, 2009.

National Aeronautics and Space Administration. Johnson Space Center, Houston, TX. Relationship between muscle strength and functional activities. November 7, 2007.

National Strength and Conditioning Association. Atlanta, Georgia. Pioneering work in muscle atrophy, its evaluation and prevention in a symposium in memory of Gary Dudley. July 2007.

United States Army Research Institute of Environmental Medicine. Magnetic Resonance Imaging and the Evaluation of Skeletal Muscle. Natick, MA, March 2007.

Mid-Atlantic Region of the American College of Sports Medicine, Harrisburg, PA. Reduced Blood Flow and Exercise. Nov 2006.

Syracuse University Gerontology Center, Maxwell School, Syracuse University – Evaluation of everyday activities in older adults, May 2005

Mid-Atlantic Region of the American College of Sports Medicine. Scope and Limitations of Muscle Functional MRI, Nov 2004.

Department of Radiology, Michigan State University. Muscle Functional MRI. August 6, 2003.

Muscle Activity Localization Using MRI – Mini-symposium at national American College of Sports Medicine conference, May 29-June 1, 2001, St. Louis, Missouri.

Issues in the measurement of disability – Symposium at national meeting of the Gerontological Society of America, November 15-18, 2001, Chicago, Illinois.

Department of Exercise Science, University of Massachusetts – How can MRI be used to assess muscle recruitment in exercise?, April 2001.

Syracuse University Gerontology Center, Maxwell School, Syracuse University – Muscle function and age, May 2000

Center for Demography and Economics of Aging, Maxwell School, Syracuse University – Muscle strength thresholds required for everyday function, February 1998

Colloquia - Use of T2 for identifying muscle activation. American College of Sports Medicine, Denver, CO, June 1997

Gatorade Exercise Physiology Laboratory, The Quaker Oats Corporation – MRI evaluation of gastric emptying, July 1996

3rd Annual Central New York Exercise Science Symposium, SUNY Cortland – Use of MRI to evaluate muscle activation patterns, April 1996

Department of Physiology, SUNY Upstate Medical University – Evaluation of human skeletal muscle function and involvement in exercise following periods of prolonged use and disuse, April 1996

INVITED BOOK CHAPTERS

VS Schneider, LL PLOUTZ-SNYDER, AD LeBlanc, and J Sibonga. Musculoskeletal Adaptation to Space Flight, Section IV. Space Flight and Crew Health – Adaptation, Pathophysiology, Rehabilitation, and Countermeasures. *Space Physiology and Medicine – Evidence and Practice, Fourth Edition* written in 2014

LL PLOUTZ-SNYDER and J Scott. Veracity of Data: Understanding Validity and Reliability. *ACSM Research Methods*, written in 2013.

JE Graves, LL PLOUTZ-SNYDER, and ML Pollock. Physiological Consequences of Deconditioning in Physically Active Populations, *Deconditioning-Reconditioning*, Gordon & Breach, CRC Press, Ed. J Greenleaf, 2004.

G.A. Dudley and L.L. PLOUTZ-SNYDER. Deconditioning and Bedrest: Musculoskeletal Response, *ACSM Resource Manual for Guidelines for Exercise Testing and Exercise Prescription – 4th edition*. 2001.

LL PLOUTZ-SNYDER. Resistance Training In Women. *Resistance Training for Health and Rehabilitation*, Human Kinetics, Eds. JE Graves, B Franklin., 2004.

G.A. Dudley and L.L. PLOUTZ-SNYDER. Bedrest and deconditioning *ACSM Resource Manual for Exercise Testing and Exercise Prescription - 3rd edition*. 1998.

TECHNICAL REPORTS

Arzeno N, Martin D, Caine T, Hackney K, Ploutz-Snyder L, Scott J, Novel Assessment of Dynamic Muscle function Using Ultrasound. In: *Johnson Space Center Research and Technology Development Report 2014,* Human Health, Life Support and Habitation Systems, and Space Medicine, NASA Report TM-2013-217382, p. 41-42, Published by the Johnson Space Center External Relations Office,.
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PEER REVIEWED ABSTRACTS

Ploutz-Snyder, LL, Buxton RE, Ryder JW, English KE, Guined JR. Effects of Reduced Strength on Self-Selected Pacing for Long-Duration Activities. Humans In Space, Prague, Czech Republic, June 2015

Ploutz-Snyder LL, Scott J, Ryder J, Downs M, Ploutz-Snyder R, Dillon L, Sheffield-Moore M, Urban, R. Integrated Resistance and Aerobic Training For the Maintenance of Cardiovascular and Skeletal Muscle Function During 70 Days of Bed Rest. Humans In Space, Prague, Czech Republic, June 2015

Ryder J, Buxton R, Guined J, English K, Ploutz-Snyder L. Use of a Novel Weighted Study to Assess Ambulatory Performance Under Reduced Strength-to-Body Weight Conditions. *American College of Sports Medicine, San Diego, CA May 2015*

Downs M, Goetchius E, Buxton R, Guined J, English K, Scott J, Ploutz-Snyder, L. Energy Requirements during 70-days of Bed Rest with High Intensity Aerobic and Resistance Exercise. *American College of Sports Medicine, San Diego, CA May 2015*

English K, Buxton T, Crowell J, Goetchius E, Guined JR, Hoellen D, Nieschwitz B, Ryder JW, Seponski C, Ploutz-Snyder R, Ploutz-Snyder, L Correlations between clinical and functional muscle outcomes: implications for spaceflight. *American College of Sports Medicine, San Diego, CA May 2015*

Lee S, Stenger M, Laurie S, Ploutz-Snyder L, Platts S. High-intensity resistive and rowing exercises do not prevent orthostatic intolerance after 70 days of bed rest: preliminary results. *American College of Sports Medicine, San Diego, CA May 2015*

Winn, B., W Jeffrey, X Durand-Hollis, G Kozma, D Ward, J PIvarnki, N Kerr, A Ede, S Samendiger, L Ploutz-Snyder, and D Feltz. Train Like An Astronaut International Academic Conference on Meaningful Play, East Lansing, MI. Oct 2014.

DeWitt J, Ploutz-Snyder L. Biomechanics of treadmill locomotion on the International Space Station, 35th Annual International Society for Gravitational Physiology (ISGP) Meeting: *Life in Space for Life on Earth*, 13th European Life Sciences Symposium and 1st Aging in Space Symposium: *Aging in Space for Life on Earth*, University of Waterloo, Canada, June 16-20, 2014.

Hanson A, Peters B, Caldwell E, Newby N, Sinka J, Kreutzburg G, Ploutz-Snyder L. Portable load measurement device for use during ARED exercise on ISS, 35th Annual International Society for Gravitational Physiology (ISGP) Meeting: *Life in Space for Life on Earth*, 13th European Life Sciences Symposium and 1st Aging in Space Symposium: *Aging in Space for Life on Earth*, University of Waterloo, Canada, June 16-20, 2014.

Platts SH, Stenger MB, Ploutz-Snyder LL, Lee SMC. High intensity exercise countermeasures do not prevent orthostatic intolerance following prolonged bed rest,

35th Annual International Society for Gravitational Physiology (ISGP) Meeting: *Life in Space for Life on Earth*, 13th European Life Sciences Symposium and 1st Aging in Space Symposium: *Aging in Space for Life on Earth*, University of Waterloo, Canada, June 16-20, 2014.

Ploutz-Snyder L, Moore A, Scott J. "Assessment of bed rest as a spaceflight analogue for evaluation of efficacy of exercise countermeasures," Session 5: *Cardio-respiratory Physiology 2*, 35th Annual International Society for Gravitational Physiology (ISGP) Meeting: *Life in Space for Life on Earth*, 13th European Life Sciences Symposium and 1st Aging in Space Symposium: *Aging in Space for Life on Earth*, University of Waterloo, Canada, June 16-20, 2014.

A Moore, M Downs, S Lee, A Feiveson, P Knudsen, S Evetts, LL Ploutz-Snyder. Peak Oxygen Uptake During and After Long Duration Space Flight. American Collage of Sports Medicine, Orlando, FL May 2014.

K English, N Newby, J De Witt, C Beck, R Rovenkamp, LL Ploutz-Snyder. Comparison of Knee and Ankle Dynamometry Between The Exoskeleton and Biodex System 4. American Collage of Sports Medicine, Orlando, FL May 2014.

M Downs, R Buxton, A Moore, R Ploutz-Snyder, LL Ploutz-Snyder. Contributions of Astronauts Aerobic Exercise Intensity and Time on Change in VO_2peak during Spaceflight. American College of Sports Medicine, Orlando, FL May 2014.

M Reschke, LL Ploutz-Snyder, I Kofman, J Cerisano, E Fisher, J Bloomberg, E Tomilovskaya, I Rukavishnikov, I Kozlovskaya. Postural responses associated with space flight and ground based analogs. Humans In Space, Cologne, Germany, July 2013.

LL Ploutz-Snyder, A Moore, J Sibonga. Influence of ARED and T2 on fitness assessments following long duration spaceflights on the International Space Station. Humans In Space, Cologne, Germany, July 2013.

LL Ploutz-Snyder, R Buxton, R Ploutz-Snyder, J Ryder. What type of muscle performance assessment is most sensitive to change with unloading: isokinetic, isometric, or isotonic tests? Humans In Space, Cologne, Germany, July 2013.

De Witt JK, Ploutz-Snyder LL, Fincke RS, Guilliams ME. Biomechanical analysis of treadmill locomotion on the International Space Station, 2nd Annual ISS Research and Development Conference, Denver, CO. July 2013.

DeWitt, JK, RS Fincke, ME Guilliams and LL Ploutz-Snyder. Ground Reaction Forces During Treadmill Exercise on the International Space Station. American Society of Biomechanics Annual Meeting, Gainesville, FL, August 2012.

KJ Hackney, M Everett, LL Ploutz-Snyder. Nutrition Coupled with High-Load or Low-Load Blood Flow Restricted Exercise During Human Limb Suspension. 2012 ESA/ISGP Life in Space for Life on Earth , Aberdeen, United Kingdom, June 2012.

Ploutz-Snyder, LL, E Goetchius, B Crowell, K Hackney, J Wickwire, J Ryder, R Ploutz-Snyder and J Scott. Integrated Resistance and Aerobic Training Maintains Cardiovascular and Skeletal Muscle Fitness During 14 Days of Bed Rest. 2012 ESA/ISGP Life in Space for Life on Earth , Aberdeen, United Kingdom, June 2012.

Scott, JM, K Hackney, M Everett, J Guined, R Ploutz-Snyder, D Cunningham, LL Ploutz-Snyder. The Metabolic Cost of a High Intensity Exercise Program during Bed Rest. 2012 ESA/ISGP Life in Space for Life on Earth , Aberdeen, United Kingdom, June 2012.

Loerch, L, N Newby, J Sinka, LL Ploutz-Snyder. Analog Exercise Hardware to Implement a High Intensity Exercise Program during Bed Rest. 2012 ESA/ISGP Life in Space for Life on Earth , Aberdeen, United Kingdom, June 2012.

Hackney, KJ, JM Scott[2], R Buxton, E Goetchius, B Crowell, JW Ryder, JJ Bloomberg and LL Ploutz-Snyder. Muscle Adaptations Following Short Duration Bed Rest with Integrated Resistance, Interval, and Aerobic Exercise. American College of Sports Medicine, San Francisco, CA, May 2012

Everett, ME, KJ Hackney, D Martin, and LL Ploutz-Snyder. Femoral Blood Flow and Cardiac Output During Blood Flow Restricted Leg Press Exercise. American College of Sports Medicine, San Francisco, CA, May 2012

Wickwire, PJ, M Leach, J Ryder, R Ploutz-Snyder, and LL Ploutz Snyder. Reliability of Upright and Supine Power Measurements Using an Inertial-Load Cycle Ergometer. National Strength and Conditioning Association Annual Meeting. Las Vegas, NV, July 2011.

DeWitt, JK, RS Fincke, RL Logan, ME Guilliams, and LL Ploutz-Snyder. Kinematics and Kinetics of Squat and Deadlift Exercises With Varying Stance Widths. National Strength and Conditioning Association Annual Meeting. Las Vegas, NV, July 2011.

LLPloutz-Snyder, J Ryder, R Buxton, E Redd, M Scott-Pandorf, K Hackney, J Fiedler, R Ploutz-Snyder, J Bloomberg. Novel Analog For Muscle Deconditioning, American Society for Gravitational Physiology/International Gravitational Physiology Society Joint Meeting. San Diego, CA, October 2011

De Witt JK, Fincke RS, Logan RL, Guilliams ME, Ploutz-Snyder LL. Load variation influences on joint work during squat exercise in reduced gravity. American Society of Biomechanics Annual Meeting, Long Beach, CA, August 2011.

Marko, M, C Neville, and LL PLOUTZ-SNYDER. Decreased Lower Extremity Isometric Muscle Torque Predicts Daily Task Modifications Among Community Dwelling Older Adults. New York American Physical Therapy Association, October 2011

Wickwire PJ, M Leach, J Ryder, R Ploutz-Snyder, and LL PLOUTZ-SNYDER. Reliability of Upright and Supine Power Measurements Using an Inertial-Load Cycle Erogometer. National Strength and Conditioning Association Annual Meeting. LasVegas, NV, July 2011.

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JW Ryder, R Buxton, E Redd, M Scott-Pandorf, K Hackney, J Fiedler, R Ploutz-Snyder, JJ Bloomberg and LL Ploutz-Snyder. Analysis of Skeletal Muscle Metrics as Predictors of Functional Task Performance. *Med. Sci. Sports Exerc.* 2011.

JM Scott, DS Martin, D Cunningham, T Matz, T Caine, K Hackney, N Arzeno, LL Ploutz-Snyder. Reliability and Validity of Ultrasound Cross Sectional Area Measurements for Long-Duration Spaceflight. *Med. Sci. Sports Exerc.* 2011.

KL English, RJ Ploutz-Snyder, JB Crowell, RL Cromwell, LL Ploutz-Snyder. Gender differences in isokinetic strength after 60 and 90 d bed rest. *Med. Sci. Sports Exerc.* 2011

LL Ploutz-Snyder, J Ryder, R Buxton, E Redd, M Scott-Pandorf, K Hackney, J Fiedler, R Ploutz-Snyder, J Bloomberg. Novel analog for muscle deconditioning. *Experimental Biology 2011*

K. J. Hackney, KL English, E Redd, JK De Witt, R Ploutz-Snyder, and L.L Ploutz-Snyder. A Ground-based Comparison of the Muscle Atrophy Research and Exercise System (MARES) and a Standard Isokinetic Dynamometer. *International Humans In Space 2011*

RE Buxton, BA Spiering, JW Ryder, LL Ploutz-Snyder, JJ Bloomberg. Muscle performance measures in short-duration Shuttle crewmembers. *International Humans In Space 2011*

Maximum Oxygen Uptake During Long-Duration Space Flight: Preliminary Results A.D. Moore, Jr., S.N. Evetts, A.H. Feiveson, S.M.C. Lee, F.A. McCleary, S.H. Platts and L. Ploutz-Snyder. *International Humans In Space 2011*

LL Ploutz-Snyder, J Ryder, K Hackney, M Scott-Pandorf, E Redd, R Buxton, J Bloomberg. Relationships among lower body strength, power and performance of functional tasks. *Life In Space For Life On Earth. International Society of Gravitational Physiology*, Trieste Italy, June 2010.

SB Cook, KA Brown, SM Smith, and LL Ploutz-Snyder. Evaluation of bone markers during unilateral lower limb suspension and blood flow restricted exercise. *Med. Sci. Sports Exerc.* 2010.

BA Spiering, SMC Lee, AP Mulavara, JR Bentley, RE Buxton, EL Lawrence, J Sinka, ME Guilliams, LL Ploutz-Snyder, and JJ Bloomberg. Reliability of a test battery designed for quickly and safely assessing diverse indices of neuromuscular function. *Med. Sci. Sports Exerc.* 2010.

KJ Hackney, SB Cook, LL Ploutz-Snyder. Resistance exercise and nutrition in muscle mypertrophy following disuse muscle atrophy: a pilot study. *Med. Sci. Sports Exerc.* 2010.

RM Franklin, LL Ploutz-Snyder, NM Szeverenyi, JA Kanaley. The effects of an acute resistance exercise bout on the IMCL content in obese younger and older women. *Med. Sci. Sports Exerc.* 2010.

LL Ploutz-Snyder and SB Cook. Low load resistance training with blood flow restriction as a countermeasure to disuse atrophy. Presented as a poster at the IAA Humans In Space Conference in Moscow, Russia, June 10, 2009.

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LL Ploutz-Snyder, SB Cook, TJ Fairchild, KM Hackney, V Frechette. Decreases in muscle volume with whole body dehydration. *Physiologist*, 2008.

RM Franklin, LL Ploutz-Snyder, JA Kanaley. Changes in Abdominal Fat Distribution with Menopause: A Longitudinal Study. *Med. Sci. Sports Exerc.* 40(5):S111, 2008.

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PLOUTZ, L.L., D.L. Tatro, G.A. Dudley, and V.A. Convertino. Changes in plasma volume during 24 hours after heavy resistance exercise. Presented at American College of Sports Medicine, Orlando, Florida, 1991. *Medicine and Science In Sports and Exercise*. 23(4):S20, 1991.

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Convertino, V.A., L.L. PLOUTZ, and D.F. Doerr. Resetting of the carotid-cardiac baroreflex response relationship during exercise in man. Presented at American College of Sports Medicine, Orlando, Florida, 1991. *Medicine and Science In Sports and Exercise*.. 23(4):S162, 1991.

PLOUTZ, L.L., R.M. Gilders, and F.C. Hagerman. Hyperoxic training. Presented at American College of Sports Medicine, Salt Lake City, Utah. 1990. *Medicine and Science In Sports and Exercise*. 22(2):S36, 1990.

PLOUTZ, L.L., Workshop entitled Tutorial: An Honors Diversity. National Collegiate Honors Council Conference, Miami, Florida, 1986. Discussed the Honors Tutorial College at Ohio University, attended by deans, directors, faculty and students in honors programs.

GRANTS FUNDED

National Aeronautics and Space Administration. *Sweat rates during continuous and interval aerobic exercise: implications for NASA multipurpose crew vehicle (MPCV) missions.* LL Ploutz-Snyder, co-PI. 10/1/2015- 9/30/2016, $100,000

National Space Biomedical Research Institute. Developing Personalized Countermeasures for Sensorimotor Adaptability: A Bedrest Study. LL Ploutz-Snyder, co-I. 6/1/2104-5/31/2017, $1,200,000.

National Aeronautics and Space Administration. *Exploring the relationship between in-flight training load data and musculoskeletal health outcomes* LL Ploutz-Snyder, PI. 10/1/2014- 9/30/2015, $100,000.

National Aeronautics and Space Administration. *Influence of Exercise Modality on Cerebral-Ocular Hemodynamics and Pressures.* LL Ploutz-Snyder, co-I, 10/1/2014-9/30/2015, $100,000.

National Aeronautics and Space Administration, EPSCoR solicitation NNH13ZHA001C. *Mechanical Unloading and Irradiation-induced musculoskeletal loss and dysfunction: molecular mechanisms and therapeutic nanoparticles*. PI M Jaridi, West Virginia University Research Corporation, LL Ploutz-Snyder, consultant, $750,000.

National Space Biomedical Research Institute solicitation NNJ12ZSA002N: *Cyber Partners: Harnessing Group Dynamics to Boost Motivation for More Efficient Exercise*. PI D Feltz, Michigan State University, LL Ploutz-Snyder co-I, 6/2013-5/2016. $1,190,655.

National Space Biomedical Research Institute. *Integrated Resistance and Aerobic Exercise Training with Small Compact Exercise Equipment*, submitted in response to NRA NNJ11ZSA002N. Principal Investigator, 10/2012-9/2016, $1,600,000.

National Space Biomedical Research Institute. *Team Leader For Musculoskeletal Alterations Team*, submitted in response to NSBRIRFA-12-01. 6/2012-5/2016, $240,000.

European Space Agency. *Biomechanical Quantification of Bone and Muscle Loading to Improve the Quality of 0g Countermeasure Prescriptions for Resistive Exercise*. Role: Co-Investigator, pending final selection, score 91/100.

National Aeronautics and Space Administration. *Biomechanical Analysis of Treadmill Locomotion on ISS*, co-I, PI. J DeWitt. $50,641 May 2009.

National Aeronautics and Space Administration. *Integrated Resistance and Aerobic Training Study (SPRINT)* . Principal Investigator. 10/09-9/16, $3,942,983.

National Aeronautics and Space Administration. *Essential Amino Acid-Carbohydrate Intake Prior to Low Load Resistance Training with Blood Flow Restriction as a Countermeasure to Unweighting.* $82,000, 2008-20011, P.I. LL PLOUTZ-SNYDER. Training grant for Ph.D. student K Hackney.

National Aeronautics and Space Administration. *Efficacy of resistance exercise coupled with blood flow restriction as a countermeasure to unilateral lower limb suspension.* $82,000, 2006-2009, P.I. LL PLOUTZ-SNYDER. Training grant for Ph.D. student SB Cook.

Department of Defense - SBIR subcontract with Intelligent Automation, Inc. *UWB Muscle Water Sensor Phase 2*. Contract #W81XWH-04-C-0011 $750,000, 3/06-10/08, Subcontract to LL Ploutz-Snyder $150,000.

Department of Defense - SBIR subcontract with Intelligent Automation, Inc. Muscle Water Sensor. 2/04-06/04, $23,000. PI - LL Ploutz-Snyder

US Department of Education – National Institute on Disability and Rehabilitation Research - Field Initiated Research Program. *Muscle strength and functional performance in individuals with Down Syndrome*. $448,621, 7/1/03-6/30/06. Co-investigator.

National Aeronautics and Space Administration. *Neuromuscular function and countermeasures to pronlonged unweighting*. $72,000, 2003, P.I. LL PLOUTZ-SNYDER. Training grant for Ph.D. student BC Clark

SUNY Upstate Medical University, *Research Support for Faculty*, $43,512. P.I. PLOUTZ-SNYDER.

Life Fitness Academy. Equipment grant in support of exercise training for older adults. $22,000, 2003, P.I. LL PLOUTZ-SNYDER.

Michael Pollock Memorial Grant, Life Fitness Academy, *Traditional vs. functional strength training in older individuals with pre-clinical disability*, $5,000, 2001, P.I. L.L. PLOUTZ-SNYDER.

Hartford Walking Systems, *Comparison of assisted and non-assisted walking*, $10,000, 2001, P.I. L.L. PLOUTZ-SNYDER

National Institute on Aging. *Pilot study for the relationship of muscle strength to function*. 1/98 to 12/98. $17896.78. P.I. L.L. PLOUTZ-SNYDER.

Quaker Oats Corporation (Gatorade). *Animation of MRI Images of Gastric Emptying*, 1/12/97. $5500. P.I. L.L. PLOUTZ-SNYDER.

Quaker Oats Corporation (Gatorade). *Measurement of Gastric Emptying Using Magnetic Resonance Imaging*. 7/95-6-96. $20,000. P.I. L.L. PLOUTZ-SNYDER.

National Aeronautics and Space Administration Graduate Student Researchers Program. *Skeletal Muscle Activation Patterns Following Periods of Prolonged Use and Disuse*. 10/92 to 10/94. $62,000. P.I. L.L. PLOUTZ-SNYDER.

National Aeronautics and Space Administration. *Comparison of Exercise Training Regimens For Long-Term Spaceflights*. 1/93 to 12/93. $45,000. Co-investigator. L.L. PLOUTZ-SNYDER

Ohio University Research Committee. *Hyperoxic Training*. 1989. $5150. CoP.I. L.L. PLOUTZ.

John Houk Research Award, *Metabolic and Cardiovascular Adaptations to Hyperoxic Training,*. 1989. $500. P.I. L.L. PLOUTZ.

GRANTS SUBMITTED BUT NOT CURRENTLY FUNDED

NASA Directed Study. Identification of Fitness Standards for Exploration Mission Tasks. PI LL Ploutz-Snyder $896,948.

NASA Omnibus NRA. *An Innovative Approach to Prescribing Treadmill Exercise Intentsity and Optimizing Bone Loading*. PI M Downs, $100,000, LL Ploutz-Snyder, co-I, invited to step 2.

NASA Omnibus NRA. *Gait Retraining to Improve Efficacy of Treadmill Exercise to Protect Lower Extremity Bone Mineral Density*. PI J De Witt, $100,000, LL Ploutz-Snyder, co-I, invited to step 2.

NASA Omnibus NRA. *Influence of Gravity Replacement Load Upon Running Biomechanics In Microgravity*. PI J De Witt, $100,000, LL Ploutz-Snyder, co-I, invited to step 2.

NASA Omnibus NRA. *Mechanisms contributing to alterations in calf muscle mass and strength: Implications for an Integrated Countermeasure*. PI J Scott, $100,000, LL Ploutz-Snyder, co-I, invited to step 2.

NASA Omnibus NRA. *Optimal Loading Profiles For Small Compact Exercise Devices*. PI LL Ploutz-Snyder, $100,000, invited to step 2.

NASA Omnibus NRA. *Sweat Rates During Continuous and Interval Aerobic Exercise: Implications for NASA Multipurpose Crew Vehicle (MPCV) Missions*. PI J Ryder, $100,000, LL Ploutz-Snyder, co-I, invited to step 2.

National Space Biomedical Research Institute solicitation NNJ13ZSA002N: Exercise Therapy to Mitigate Cervico-Thoracic Deconditioning During Spaceflight. PI LL Ploutz-Snyder, $1,200,000. 88/100, no research funded on this topic.

National Space Biomedical Research Institute solicitation NNJ12ZSA002N: *Exergaming for Astronaut Musculoskeletal and Cardiovascular Maintenance*. PI D DiPasquale, Harvard, LL Ploutz-Snyder consultant.

NASA Omnibus NRA. *Novel Assessment of Dynamic Muscle Function Using Ultrasound*. PI J Scott, USRA, $100,000, LL Ploutz-Snyder, co-I

NASA Omnibus NRA. *Development of a sensorimotor countermeasure to enhance the efficacy of inflight exercise, reduce the potential for postflight orthostatic intolerance and limit space flight induced changes in the major postural muscles.* Role Co-Investigator, PI M Reschke 8/1/12-7/31/13. $99,744, invited to step 2, not funded.

NASA NRA. *Comprehensive morphological and functional muscle assessment for long-duration spaceflight.* Role **Principal Investigator**. 10/1/2011-9/30/2014. $908,957. Score 83/100.

National Space Biomedical Research Institute. *Effects of radiation on the effectiveness of exercise countermeasures to protect skeletal muscle function during hindlimb unloading.* Role Co-Investigator, PI Jeffrey Ryder. 10/1/2011-9/30/2014. $1,007,831. Score 69/100.

National Space Biomedical Research Institute. *Multiscale modeling to determine in-vivo muscular force and bone strain for the assessment of exercise countermeasures to mitigate muscle and bone loss.* Role Co-Investigator, PI Melissa Scott-Pandorf. 10/1/2011-9/30/2014.

National Dairy Council Step 1&2 - *Does Milk Enhance The Effectiveness of Exercise For The Maintenance of Muscle Function During Extended Periods Of Unloading?* Role: **Principal Investigator**. 1/1/2011 to 12/31/2013; $176,000. Invited to step 2, not funded.

NASA NRA – NNJ09ZSA002N, *Maintenance of cardiovascular, muscle and bone health with a combined exercise and nutrition program*. Role: **Principal Investigator**. 1/1/2011 to 12/31/2013; $977069. Score 69/100.

NASA NRA – NNJ09ZSA002N, *Developing submaximal exercise protocols to predict readiness for lunar mission specific EVA tasks in astronauts.* Role: Co-Investigator. PI-Richard Simpson.

NASA NRA – NNJ09ZSA002N. *Development of Performance Measure of Readiness to perform for EVA Tasks.* Role: Co-Investigator, not scored. PI – Ram Bishu, Univ of Nebraska.

NASA NRA – NNJ09ZSA002N . *Omega-2 Fatty Acids: A Nutritional Countermeasure For Spaceflight-induced Bone and Muscle Loss*. Role: Collaborator. PI Scott Smith, NASA. Score 68/100.

National Aeronautics and Space Administration. *KineSys: Novel exercise device for use in space-based applications.* $350,000. Co-investigator with Mayhew and Bachrach, submitted September 2007.

Office of Naval Medical Research. *Non-invasive monitoring of dissolved nitrogen and hydration for prevention of decompression sickness.* $675,000 total, $232,000 to Syracuse University as subcontract to LL Ploutz-Snyder, submitted July 2007.

National Space Biomedical Research Institute. *Low load resistance training coupled with blood flow occlusion as a countermeasure to prolonged disuse*. Principal Investigator, $659,432, 2007.

National Institute of Health R01. *Exercise effects on ectopic fat accumulation in young and older obese subjects*. Co-investigator, $1,321,870, 2007.

National Institute of Health, R21. *An intelligent passive active motor recovery strategy for stroke rehabilitation*. Co-investigator. $380,921, 2006.

National Institute of Health R03. Co-investigator. *Effects of task constrains on postural stability in aging*. $150,000, 2006

National Institute of Health. *Tracking Muscle Fluid Constituents Using Spectrographic Electromagnetic Probing*. Submitted by TransTech Inc. PI – R Gamache. , $500,000, 9/31/05-8/31/07, Consultant.

General Mills Corporation Youth Nutrition and Fitness Grants. *Liberty Kids: Healthy Bodies, Healthy Minds*. $10,000. 05/05-09/06, Co-Investigator – in review

National Aeronautics and Space Administration. *Neuromuscular adaptation to disuse*. $459,851, 6/04-5/07, submitted 7/03, Principal Investigator

US Department of Education – National Institute on Disability and Rehabilitation Research – RERC Program. *Center on Functional Performance and Physical Rehabilitation*. $4,492,996. 12/1/2002 – 11/30/2007, submitted 8/02. Co-Investigator

National Institute of Health. *An Interdisciplinary Program for Caregiver Well-being*. $2,453,667. 1/1/03-12/31/07, submitted 2/02. Co-Investigator

Doris Duke Charitable Foundation. *Stroke rehabiliation – muscle spasticity*. $200,000, submitted 11/27/01. Principal Investigator

National Institute of Health. *Abdominal Fat Loss With Diet and Exercise in Type 2 Diabetic Women*. $1,000,000. Submitted 6/1/01. Co-investigator.

National Institute on Aging. *Influence of Skeletal Muscle on Physical Function*. $391,564, 1999. Principal Investigator

National Institute on Aging. *Muscle Strength and Functioning at Older Ages* - $75,500, 1999, Principal Investigator

National Institute on Aging. *Center for Demography and Economics of Aging (Maxwell*), P.I. Doug Wolf – I am listed as a Senior Faculty Associate. $2,000,000. ~$70,000 specifically for the Musculoskeletal Research Laboratory/salaries/equipment/ etc., 1998

North American Spine Society. *Using muscle functional magnetic resonance imaging to evaluate the effects of spinal manipulative therapy and resistance training on the activation patterns of the lumbar extensor muscles during exercise in chronic low back pain patients*. $23,285, 1997, Principal Investigator

National Aeronautics and Space Administration. *Resistance exercise countermeasure to unweighting induced muscle atrophy and dysfunction*. $525,659, first submission and requested revision both in 1996, Principal Investigator

National Institute of Aging. *Decreased skeletal muscle function in aging humans*. $67,651, 1996, Principal Investigator

American Federation of Aging Research - *Skeletal muscle function in aging humans.* $40,000, 1996, Principal Investigator

Women's Sports Foundation. *Fluid rehydration and swimming*. $5,000, 1996, Principal Investigator

Student Grants Funded

Syracuse University: Graduate School Travel Grant . *Effects of exercise intensity and vascular occlusion pressure and duration on skeletal muscle function* . $400. Student: Summer Cook. 2007.

Syracuse University: Graduate School Travel Grant . *The effect of resistance training in individuals with Down syndrome*. $400. Student: Patrick Cowley. 2007.

Syracuse University: Graduate School Travel Grant. *Influence of motor imagery on disuse-induced strength loss and central activation function*. $400. Student: Summer Cook. 2006

Syracuse University: Graduate School Travel Grant. *Reliability and validity of handheld dynamometer to assess knee and ankle strength in an older adult population* $400. Student: Seung Jung. 2007.

Syracuse University: Graduate School Travel Grant. *Kinesthetic motor imagery acutely increases spinal excitability* $400. Student: Patrick Cowley. 2006

Syracuse University: SOE Creative Research Grant. Student. *Efficacy of resistance exercise coupled with blood flow restriction as a countermeasure to prolonged unweighting*. Summer Cook $1000. 2006.

Syracuse University: SOE Creative Research Grant. *Neuromuscular characteristics of individuals with Down syndrome*. Student: Patrick Cowley $610. 2006.

American College of Sports Medicine. Summer Cook. *Resistance exercise and ischemia in simulated spaceflight*. $5000. 2006.

National Aeronautics and Space Administration Space Physiology Research Grant through the American College of Sports Medicine Foundation.*Countermeasures to disuse-induced neuromuscular dysfunction*. $5,000. 2005-2006.

National Aeronautics and Space Adminstration Space Physiology Research Grant through the American College of Sports Medicine Foundation.*Neuromuscular adaptations to simulated-microgravity*. $2,500. 2004-2005.

SUNY Upstate Medical University. *Sensory threshold electrical stimulation: effects on muscle MRI and mf-MRI*. Student: Lynne Logan, $12,500. 2/05

TASCNetwork. *Sensory threshold electrical stimulation: effects on muscle MRI and mf-MRI*. equipment grant of $15,000, 2005

American Physical Therapy Association. *Sensory threshold electrical stimulation: effects on muscle MRI and mf-MRI*. Student: Lynne Logan, $1,000. 2/05

American College of Sports Medicine & Robert Wood Johnson Foundation. *Traditional vs. functional strength training in older subjects*. Student: Todd Manini, $10,000.

Syracuse University: SOE Creative Research Grant. *Functional versus resistance training: Improvement of physical function in functionally limited older adults.* Student: Todd Manini, $1000.

Syracuse University: Graduate School Travel Grant. An EMG and force comparison for walking with crutches and an ergonomically designed walker. $400. January, 2002. Student: Todd Manini

Sidney Young Research Award. *Relationship of Self-Reported and Observed Performance in Daily Tasks Among Older Adults* Student: Summer Baldwin, $215.00.

Syracuse University: SOE Creative Research Grant. *Relationship of Self-Reported and Observed Performance in Daily Tasks Among Older Adults* Student: Summer Baldwin, $201.21.

Mid-Atlantic Region Chapter of the American College of Sports Medicine Student Research Grant Award. *Gender differences in skeletal muscle fatigability* $500. November, 2002. Student: Brian Clark

Syracuse University: SOE Creative Research Grant Gender differences in human skeletal muscle fatigability. $1,000. July, 2002. Student: Brian Clark

Syracuse University: Sidney W. Young Graduate Student Research Award. Gender differences in skeletal muscle fatigability. $375. February, 2002. Student: Brian Clark

Syracuse University: Graduate School Travel Grant. Effect of muscle fatigue on the electromyogram characteristics of the lumbar paraspinal and hip extensor muscles. $400. January, 2002. Student: Brian Clark

ORGANIZATIONS AND SERVICE

Associate Editor -	*Medicine and Science in Sports and Exercise* *Journal of Strength and Conditioning Research*
Manuscript Reviewer -	*Physical Medicine and Rehabilitation International* *American Journal of Physiology: Heart and Circulatory Physiology* *Archives of Physical Medicine and Rehabilitation* *Aviation Space and Environmental Medicine* *Canadian Journal of Applied Physiology*

	Experimental Brain Research *International Journal of Sports Medicine* *Journal of Applied Physiology* *Medicine and Science in Sports and Exercise* *Mental Retardation* *Muscle and Nerve* *Intellectual and Developmental Disabilities*
American College of Sports Medicine-	*Fellow* – 1998 to present *Professional Member* - 1994 to present *Student Member* - 1991-1994
American Physiological Society-	*Regular Member* - 1997 to present
New York Chiropractic College	Institutional Review Board – 1998-2000
Syracuse University Service	Chancellors Citation For Excellence Committee 2007-08 Elected to SU Faculty Senate – 2007 to present SU Gerontology Center Advisory Board 2005 to present Middle States Study Group – 1998
School of Education Service	Search Committee Chair – Undergraduate Advisor Exercise Science 2008 Search Committee Chair – Assistant Professor & Instructors Physical Education 2008 Search Committee Chair – Assistant Professor in Exercise Science 2007 Search Committee Chair – Assistant Professor in Exercise Science 2006 Dean's Council 2004- present Teaching Committee (Koszalka) - 2002 Research Methods Committee – 2000 -2002 Curriculum Committee – 1998 -2003 Community Building Task Force – 1998 Teaching Committee (Hinchman) - 1997 Judicial Committee – 1996-97 Scholarship Committee – 1996

SUNY Upstate Medical Service	Ad hoc reviewer for the IRB Search Committee – Center for Children's Health Policy Director

Awards

NASA Johnson Space Center Directors Group Achievement Award: SPRINT Ultrasound Team, October 2014

NASA Johnson Space Center Group Achievement Award: Sex and Gender Team Report, September 2014.

NASA Software, Robotics and Simulation Division's Elite Team Award: Lower Body Loading Belt, May 2013.

NASA Space Life Sciences Recognition of Excellence: Open Innovation Service pilot program, 2011

NASA Human Research Program Peer Award – recognized by peer's for outstanding leadership

NASA Johnson Space Center Group Achievement Award: Functional Tasks Test Team, May 2010.