

# CURRICULUM VITAE

**NAME:** Joseph W. Starnes

**INSTITUTION:** The University of North Carolina at Greensboro  
Department of Kinesiology  
1408 Walker Avenue, room 250  
Greensboro, NC 27412  
Phone: (336) 334-9850  
FAX: (336) 334-3070  
e-mail: jwstarne@uncg.edu

**DATE OF BIRTH:** April 2, 1949

**EDUCATION:** Georgia Institute of Technology, B.S., Management, 1972  
Georgia State Univ., attended Master's program,  
Dept. of Biology (Physiology), 1973-1974  
Univ. of Massachusetts, Ph.D., Exercise Science, 1978  
Univ. of Michigan, Postdoc, Dept. of Cellular and Molecular  
Biology (with Robert E. Beyer), 1978-1980

**MARITAL STATUS:** Married. Meg Allison Olley, 1975

## **Professional Experience:**

Professor and Department Head, Department of Kinesiology, University of North Carolina at Greensboro	2008 - present
Professor, Department of Kinesiology and Health Education, College of Education, and Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin	1999 - 2008
Graduate Advisor and Coordinator of Graduate Programs, Dept. of Kinesiology and Health Education, University of Texas at Austin	2000 - 2008
Teresa Lozano Long Endowed Fellow in Kinesiology and Lee Hage Jamail Fellow in Education, University of Texas at Auatin	2005 - 2008
Associate Professor, Department of Kinesiology and Health Education, College of Education, and Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin	1990 - 1999
Undergraduate Advisor and Coordinator of Undergraduate Programs, Dept. of Kinesiology and Health Education, University of Texas at Austin	1991 - 2000
Visiting Professor, Dept. of Experimental Medicine and Biochemical Sciences, 2nd University of Rome, Rome, Italy	1990
Assistant Professor, Department of Kinesiology and Health Education, College of Education ('85-'90), and Division of Pharmacology and Toxicology, College of Pharmacy ('86-'90), University of Texas at Austin	1985 - 1990
Research Associate, Dept. of Physiology '80-'82 and Dept. of Biochemistry and Biophysics '82-'85, University of Pennsylvania, Philadelphia	1980 - 1985

### **Administrative Experience:**

Department Head, Department of Kinesiology, University of North Carolina at Greensboro (2008 – present).

Graduate Advisor and Coordinator of Graduate Programs, Department of Kinesiology and Health Education, University of Texas at Austin, 2000 – 2008

Chair, Institutional Animal Care and Use Committee, University of Texas at Austin, 2003 - 2008

Acting Chair (when Chair is unavailable), Department of Kinesiology and Health Education, University of Texas at Austin (2000 – 2008).

Undergraduate Advisor and Coordinator of Undergraduate Programs, Department of Kinesiology and Health Education, University of Texas at Austin, 1991 – 2000

Director, Cardiac Metabolism Laboratory, Department of Kinesiology and Health Education, University of Texas at Austin, 1985-2008 and at UNC Greensboro 2008-present

### **Awards and Honors:**

1. Michigan Heart Association Postdoctoral Fellowship, 1979 - 1980
2. New Investigator Award, American College of Sports Medicine, 1982
3. New Investigator Research Award, National Institutes of Health, 1982
4. University of Texas Summer Research Award, 1986
5. Fellow, American College of Sports Medicine, 1990
6. Selected as Host for American College of Sports Medicine International Scholar, 1991.
7. Dean's Fellowship, University of Texas, 2001
8. Dean's Technology Integration Award, University of Texas, 2001
9. Stevens Visiting Scholar, Dept. of Exercise and Sport Sciences, University of Florida, Gainesville, FL. November, 2002
10. Named Teresa Lozano Long Endowed Fellow in Kinesiology, 2005
11. Named Lee Hage Jamail Fellow in Education, 2005
12. American College of Sports Medicine, Spring Tour of Texas Lecturer, 2007

### **Society Memberships:**

American College of Sports Medicine (1977 - present), elected Fellow in 1990

American Heart Association; Basic Sciences Council (1989 - present)

American Heart Association; Council on Nutrition, Physical Activity, and Metabolism (2007-present)

American Aging Association (2000- present)

Society for Free Radical Biology and Medicine (2006 – present)

Biophysical Society (1980 - 1995)

The Gerontological Society of America (1981 -1999)

### **Other National Appointments:**

Editorial Board of *Medicine and Science in Sports and Exercise*, 1991 – 2000, *Journal of Applied Physiology*, 2009 - present

National Scientific Advisory Council of American Federation for Aging Research, 1991 - present

Research Review Committee, American Heart Association (S. Central and Western States Affiliates, 1995, 1996, 2008

### **Committee Memberships at the University of Texas:**

University Committees

Institutional Animal Care and Use Committee, 1997-Present  
Research Internship Selection Committee, 2003 - Present  
Animal Resources Center Space Committee, 2004 - Present  
Search Committee for Director, Animal Resources Center. 2005  
Faculty Grievance Committee, 1995-1996  
Faculty Research Grants Review Committee, 1994-1996, 2000, 2003

#### College Committees

Scholarship Committee, 2004 - Present  
Research Course Committee, 2003  
Promotion and Tenure Committee, 1999 - 2003  
Undergraduate Curriculum Committee, 1991-2000  
Selection Committee for Dean's Distinguished Faculty Award, 1994-1996  
Advisory Committee to Review Chairman of Kinesiology & Health Education, 1995

#### Department Committees (Kinesiology and Health Education)

Graduate Studies Committee, 1985-Present  
Budget Council, 1990-Present  
Management Team, 2000 – present  
Student Travel Awards Committee, 2001-present (Chair)  
Fitness Institute of Texas, Member of the Board, 2001 - 2003  
Undergraduate Advisory Committee, 1989-2000 (Chair 1991-2000)  
Human Subjects Research Review Committee, 1994-1999  
Faculty Merit Review Committee, 1991, 1993, 1996-2002, 2004 (Chair 1993, 1996, 2002)  
Faculty Search Committee for Sport Psychologist, 1995  
Faculty Search Committee for Clinical Exercise Physiologist, 1998 (Chair) and 2001  
Faculty Search Committee for Sport Management position, 2001  
Faculty Search Committee for Exercise Physiologist, 2005

#### Committee to Develop Graduate Brochure, 1988

#### Thesis and Dissertation Committees

21 Dissertation Committees (5 as Chair, 1 as Co-Chair)  
32 Thesis Committees (11 as Chair)

#### **Other National Professional Service:**

Abstract Reviewer for American College of Sports Medicine (ACSM) Annual Meeting, 1984, 1986, 1987, 1994. Area representative for "fat/protein metabolism" in 1987.  
Reviewer of manuscripts for Student Research Award for Texas Chapter of ACSM, 1988.  
Chair of Free Communications Sessions at ACSM Annual Meeting, 1984, 1988, 1998, 2006.  
Organized and Chaired Symposium "Control of aerobic energy metabolism in skeletal muscle." at American College of Sports Medicine Annual Meeting, Baltimore, 1989.  
Reviewer of Grants:  
American Heart Associate, Texas Affiliate, Grants-in-Aid, 1995-1997.  
American Federation for Aging Research, Research Grants, 1991 - present.  
National Sciences and Engineering Research Council of Canada, 2004  
Research into Aging, London, England, 2003.  
Hong Kong Research Grants Council, 1998 – 2000.

External reviewer for promotion and tenure:

University of Utah, 2004 and 2005  
Pennsylvania State University, 2005  
Temple University, 2005 and 2006  
University of Delaware 2008

Referee for Journals:

Acta Physiologica Scandinavica  
American Journal of Physiology  
Archives of Biochemistry & Biophysics  
British Journal of Nutrition  
Circulation  
Cardiovascular Research  
Clinical and Experimental Pharmacology and Physiology  
Experimental Gerontology  
Free Radical Biology & Medicine  
International Journal of Sports Medicine  
Lipids  
Mechanisms of Ageing and Development  
Medicine and Science in Sports and Exercisew  
Metabolism  
Molecular and Cellular Biochemistry  
Journal of the American College of Nutrition  
Journal of Applied Physiology  
Journal of Gerontology: Biological Sciences  
Journal of Physiology (London)  
Toxicology and Pharmacology  
Toxicology Letters

**Extramural Grants Funded:**

Michigan Heart Association Postdoctoral Fellowship, "Relationship of age and exercise to heart adaptability.", Principal Investigator, 7/1/79-6/30/80; \$12,000.  
National Institutes of Health, AG-03213, "Exercise and diet on the aging process of the heart.", Principal Investigator, 3/1/82-2/28/85; \$177,355.  
American Federation for Aging Research, "Exercise and diet on bioenergetics in the aging rat.", Principal Investigator, 7/1/84-6/30/85; \$24,100.  
American Heart Association, Texas Affiliate, "Control of blood flow and oxygen consumption in the heart.", Principal Investigator, 7/1/86-6/30/87; \$25,000.  
American Heart Association, Texas Affiliate, "Hypoxia and reoxygenation injury in aged hearts.", Principal Investigator, 7/1/89-12/30/91; \$58,000.  
Clintec Technologies Inc. "The impact of exogenous glutathione on cardioprotection from hypoxia.", Principal Investigator, 9/1/92-8/31/94; \$60,000.  
American Heart Association, Texas Affiliate, "Effects of chronic ethanol consumption upon cardiac energetics and function.", Co-Principal Investigator (with R.P. Farrar), 7/1/94-6/30/96; \$83,160.  
National Institutes of Health, HL-51005, "Cellular reducing equivalents and oxidative stress.", Co-Investigator (J.P. Kehrer, P.I.), 8/1/94-7/31/99; \$958,770.

American College of Sports Medicine Foundation Research Grant, "Development of cardioprotection during an exercise program.", with M.B. Harris, Ph.D. student, 7/1/98-6/30/99; \$5,000.  
American Heart Association, Texas Affiliate, "Effect of age on exercise-induced cardioprotective mechanisms.", Principal Investigator, 7/1/98-6/30/01; \$113,400.  
American College of Sports Medicine Foundation Research Grant, "Time course of acute exercise preconditioning.", with R.P. Taylor, Ph.D. student, 7/1/01-6/30/02; \$5,000.  
National Institutes of Health, AG-022220, "Effect of age on exercise-induced cardioprotection.", Principal Investigator, 8/1/03-7/31/05; \$146,600  
American Heart Association, Texas Affiliate, "Interaction of statins and exercise on protection against myocardial ischemia-reperfusion injury", Principal Investigator, 7/1/05-6/30/07; \$124,000.  
Organ Transport Systems. "Methods for optimal preservation of transplant hearts during transport". Principal Investigator, 1/1/06-6/30/06; \$20,000. (A second grant is pending).  
National Institutes of Health, N.I.A Intervention Testing Program, "Does simvastatin, an HMG-CoA reductase inhibitor (statin), retard murine aging?". Sponsor. 2006-2010.

### **Extramural Grants Pending or Planned:**

#### **Intramural Grants Funded:**

University Research Institute, University of Texas, "Energy metabolism and coronary flow in creatine-depleted rat hearts.", Principal Investigator, 12/10/85-3/31/86; \$6,500.  
Summer Research Award, University of Texas, "Myosin ATPase activity in the heart during aging: Effects of exercise and caloric restriction.", Principal Investigator, 6/1/86-8/31/86; \$8,500.  
University Research Institute, University of Texas, "Exercise and reperfusion injury in the myocardium.", Principal Investigator, 12/1/91-8/31/92; \$4,804.  
University Research Institute, University of Texas, "Glutathione cardioprotection during hypoxia and reoxygenation: Impact of duration of insult and timing of application.", Principal Investigator, 12/15/93-8/31/94; \$5,000.  
Dean Grant for Undergraduate Research, University of Texas, "Cardioprotective effects of exercise.", Faculty Supervisor, 12/5/94-8/31/95; \$1,000.  
Dean Grant for Undergraduate Research, University of Texas, "Effects of exercise on myocardial heat shock proteins.", Faculty Supervisor, 12/5/95-8/31/96; \$1,000.  
Undergraduate Research Fellowship, University of Texas, "Role of heat shock proteins in exercise-induced cardioprotection.", Faculty Supervisor, 1/8/97-8/31/97; \$1,000.  
Undergraduate Research Fellowship, University of Texas, "Effect of exercise on myocardial heat shock protein concentration.", Faculty Supervisor, 1/5/98-8/31/98; \$1,000.  
Undergraduate Research Fellowship, University of Texas, "Cellular pathways involved in exercise-induced cardiac hypertrophy.", Faculty Supervisor, 10/1/04-8/31/05; \$1,000.  
Undergraduate Research Fellowship, University of Texas, "Interaction of exercise and statins on mitochondria.", Faculty Supervisor, 10/1/06-5/30/07; \$1,000.

### **Organized Courses Taught at UNC Greensboro:**

Undergraduate

Physiology of Sport and Physical Activity (ESS 375) with lab

Graduate

Exercise Physiology (ESS 670)

### **Other Organized Courses Taught:** (at Univ. of Texas unless noted)

#### Undergraduate

Animal Physiology (University of Michigan, 1979)  
Physiology of Exercise (KIN 325K)  
Exercise Physiology Laboratory

#### Graduate

Cardiac Metabolism (KIN 395)  
Biology of Aging (KIN 395)  
Physiology of Aging (KIN 395)  
Muscular Responses to Stress (KIN 395)  
Metabolic Response to Exercise (KIN 395)  
Advanced Exercise Physiology I (KIN 395)  
Advanced Exercise Physiology II (KIN 395)

### **Community Service:**

#### Baseball Team Manager/Coach

Town&Country PONY league (summer and fall teams), Austin, TX. 1991-1994  
Westwood High School Summer Teams, Austin, TX. 1994, 1997-1999.  
Austin Competitive (select) Baseball League (summer and fall teams), 1995, 1996

## **PUBLICATIONS**

### **Refereed Articles:**

1. Starnes, J.W., Beyer, R.E. and Edington, D.W. Effects of age and cardiac work in vitro on mitochondrial oxidative phosphorylation and (<sup>3</sup>H)-leucine incorporation. *Journal of Gerontology* **36**: 130-135, 1981.
2. Farrar, R.P., Mayer, L.R., Starnes, J.W. et al. Biochemical parameters of two sizes of rat skeletal muscle and heart muscle mitochondria at selected intervals of a 16-week endurance training program. *European Journal of Applied Physiology* **46**: 91-102, 1981.
3. Starnes, J.W., Beyer, R.E. and Edington, D.W. Myocardial adaptations to endurance exercise in aged rats. *American Journal of Physiology* **245**: H560-H566, 1983.
4. Starnes, J.W., Edington, D.W. and Beyer, R.E. Myocardial protein synthesis during aging and endurance exercise in rats. *Journal of Gerontology* **38**: 660-665, 1983.
5. Starnes, J.W. Exercise in the elderly: Biochemical and physiological changes in the heart and muscle tissue. *Pennsylvania Center for the Study of Aging Newsletter* **6**: 5-9, 1983.
6. Beyer, R.E., Starnes, J.W., Edington, D.W. et al. Exercise-induced reversal of age-related declines in oxidative reactions, mitochondrial yield, and flavins in skeletal muscle of the rat. *Mechanisms of Ageing and Development* **24**: 309-323, 1984.
7. Fuller, E.O., Goldberg, D.I., Starnes, J.W. et al.: Mitochondrial respiration following acute hypoxia in the perfused rat heart. *Journal of Molecular and Cellular Cardiology* **17**: 71-81, 1985.
8. Starnes, J.W., Wilson, D.F. and Erecinska, M.: Substrate dependence of metabolic state and coronary flow in perfused rat heart. *American Journal of Physiology* **249**: H799-H806, 1985.
9. Beyer, R.E. and Starnes, J.W.: Coenzyme Q and myocardial function in aging and exercise. *Advances in Myocardiology* **7**: 489-511, 1985.

10. Rumsey, W.L., Kendrick, Z.V. and Starnes, J.W.: Bioenergetics in the aging Fischer 344 rat: Effects of exercise and food restriction. *Experimental Gerontology* **22**: 271-287, 1987.
11. Starnes, J.W., Beyer, R.E., Farrar, R.P. and Edington, D.W.: Protein synthesis in skeletal muscle from normal and diabetic rats following increased contractile activity in situ. *Research Communications in Chemical Pathology and Pharmacology* **58**: 339-353, 1987.
12. Starnes, J.W. and Rumsey, W.L.: Cardiac energetics and performance of exercised and food restricted rats during aging. *American Journal of Physiology* **254**: H599-H608, 1988.
13. Farrar, R.P., Starnes, J.W., Cartee, G.D., Oh, P.Y. and Sweeney, H.L.: Effects of exercise upon cardiac myosin isozyme composition during the aging process. *Journal of Applied Physiology* **64**: 880-883, 1988.
14. Daw, C.K., Starnes, J.W. and White, T.P.: Muscle atrophy and hypoplasia with aging: impact of training and food restriction. *Journal of Applied Physiology* **64**: 2428-2432, 1988.
15. Kehrer, J.P. and Starnes, J.W.: Models and markers used to study cardiac reperfusion injury. *Pharmacology Therapeutics* **44**: 123-145, 1989.
16. Starnes, J.W., Cantu, G., Farrar, R.P. and Kehrer, J.P.: Skeletal muscle lipid peroxidation in exercised and food restricted rats during aging. *Journal of Applied Physiology* **67**: 69-75, 1989.
17. Tavazzi, B., Cerroni, C., DiPierro, D., Lazzarino, G., Nuutinen, M., Starnes, J.W. and Giardina, B.: Oxygen radical injury and loss of high-energy compounds in anoxic and reperfused rat heart: Prevention by exogenous fructose-1,6-bisphosphate. *Free Radical Research Communications* **10**: 167-176, 1990.
18. Starnes, J.W., Cheong, E. and Matschinsky, F.M.: Hormone secretion by isolated perfused pancreas of aging Fischer 344 rats. *American Journal of Physiology* **260**: E59-E66, 1991.
19. Bowles, D.K., Torgan, C.E., Ebner, S., Kehrer, J.P., Ivy, J.L., and Starnes, J.W. Effects of acute, submaximal exercise on skeletal muscle vitamin E. *Free Radical Research Communications*. **14**: 139-143, 1991.
20. Fordyce, D., Starnes, J.W. and Farrar, R.P.: Compensation of the age-related decline in hippocampal muscarinic receptor density through daily exercise or underfeeding. *Journal of Gerontology: Biological Sciences* **46**: B245-B250, 1991.
21. Tavazzi, B., Starnes, J.W., Lazzarino, G., Di Pierro, D., Nuutinen, E.M. and Giardina, B. Exogenous fructose-1,6-bisphosphate is a metabolizable substrate for the isolated normoxic rat heart. *Basic Research in Cardiology* **87**: 280-289, 1992.
22. Starnes, J.W., Seiler, K.S., Bowles, D.K., Giardina, B and Lazzarino, G. Fructose-1,6-bisphosphate improves efficiency of work in isolated perfused rat hearts. *American Journal of Physiology* **262**: H380-H384, 1992.
23. Seiler, K.S., Kehrer, J.P. and Starnes, J.W. Effect of perfusion pressure at reoxygenation on reflow and function in isolated rat hearts. *American Journal of Physiology* **262**: H1029-H1035, 1992.
24. Starnes, J.W. Exercise and endurance. *Discovery* **12**: 5-9, 1992.
25. Bowles, D.K., Farrar, R.P. and Starnes, J.W. Exercise training improves cardiac function after ischemia in the isolated, working rat heart. *American Journal of Physiology* **263**: H804-H809, 1992.
26. Starnes, J.W. Introduction to respiratory control in skeletal muscle during exercise. *Medicine and Science in Sports and Exercise* **26**: 27-29, 1994.
27. Bowles, D.K. and Starnes, J.W. Exercise training improves metabolic response after ischemia in the isolated, working rat heart. *Journal of Applied Physiology* **76**: 1608-1614, 1994.
28. Starnes, J.W. and Bowles, D.K. Role of exercise in the cause and prevention of cardiac dysfunction. *Exercise and Sport Science Reviews*. **23**: 349-373, 1995.

29. Seward, S.W., Seiler, K.S. and Starnes, J.W. Intrinsic myocardial function and oxidative stress after exhaustive exercise. *Journal of Applied Physiology* **79**: 251-255, 1995.
30. Seiler, K.S., Kehrer, J.P. and Starnes, J.W. Exogenous glutathione attenuates stunning following intermittent hypoxia in isolated rat hearts. *Free Radical Research* **24**: 115-122, 1996.
31. Starnes, J.W., Bowles, D.K. and Seiler, K.S. Myocardial injury after hypoxia in immature, adult and aged rats. *Aging: Clinical and Experimental Research* **9**: 268-276, 1997.
32. Robertson, J.D., Starnes, J.W. and Kehrer, J.P. Cosubstrates involved in the reduction of cytosolic glutathione disulfide in rat heart. *Toxicology* **124**: 11-19, 1997.
33. Swift, J.R., Kehrer, J.P., Seiler, K.S. and Starnes, J.W. Vitamin E concentration in rat skeletal muscle and liver after exercise. *International Journal of Sport Nutrition* **8**: 105-112, 1998.
34. Gibson, B.T., Ong, J.H., Starnes, J.W. and Farrar, R.P. Effects of chronic moderate and heavy ethanol consumption on myocardial recovery after ischemia. *Alcoholism: Clinical and Experimental Research* **22**: 2086-2092, 1998.
35. Taylor, R.P., Harris, M.B. and Starnes, J.W. Acute exercise can improve cardioprotection without increasing heat-shock protein content. *American Journal of Physiology* **276**: H1098-H1102, 1999.
36. Seiler, K.S. and Starnes, J.W. GSH protection during hypoxia/reoxygenation of the isolated rat heart: Impact of duration of hypoxia. *Free Radical Research* **32**: 41-55, 2000.
37. Harris, M.B. and Starnes, J.W. Effects of body temperature during exercise training on myocardial adaptations. *American Journal of Physiology* **280**: H2271-H2280, 2001.
38. Mitchell, C.R., Harris, M.B., Cordaro, A., and Starnes, J.W. Effect of body temperature during exercise on skeletal muscle cytochrome *c* oxidase content. *Journal of Applied Physiology* **93**: 526-530, 2002.
39. Taylor, R.P. and Starnes, J.W. Age, cell signaling and cardioprotection. *Acta Physiologica Scandinavica* **178**: 107-116, 2003.
40. Taylor, R.P., Ciccolo, J.T., and Starnes, J.W. Effect of exercise training on the ability of the rat heart to tolerate hydrogen peroxide. *Cardiovascular Research* **58**: 575-581, 2003
41. Starnes, J.W., Taylor, R.P., and Park, Y. Exercise improves cardioprotection in aged rats. *American Journal of Physiology: Heart & Circulatory Physiology* **285**: H347-H351, 2003.
42. Starnes, J.W., Taylor, R.P., and Ciccolo, J.T. Low-intensity exercise training does not protect against myocardial stunning in rats. *European Journal of Cardiovascular Prevention and Rehabilitation* **12**:169-174, 2005
43. Starnes, J.W., Choilawala, A., Taylor, R.P., Nelson, M.J. and Delp, M.D. Myocardial heat shock protein 70 expression in young and old rats after identical exercise programs. The interaction of aging and exercise on the expression of heat shock protein. *Journal of Gerontology: Biological Sciences* **60A**: 963-969, 2005.
44. Lowenthal D.T., Kendrick, Z.V., Starnes, J.W. and Carmeli E. Effects of caloric restriction and exercise training on skeletal muscle histochemistry in aging fischer 344 rats. *Scientific World Journal* **6**: 000-000, 2006.
45. Taylor, R.P., Olsen, M.E., and Starnes, J.W. Late preconditioning following acute exercise is not mediated by nitric oxide synthase in the rat heart. *American Journal of Physiology: Heart & Circulatory Physiology* **292**: H601-H607, 2007.
46. Starnes, J.W., Barnes, B.D., and Olsen, M.E. Exercise training decreases rat heart mitochondria free radical generation but does not prevent Ca<sup>2+</sup>-induced dysfunction. *Journal of Applied Physiology* **102**: 1793-1798, 2007.
47. Starnes, J.W. and Taylor, R.P. Exercise-induced cardioprotection: Endogenous mechanisms. *Medicine and Science in Sports and Exercise* **39**: 1537-1543, 2007.

48. Starnes, J.W. Effect of Storage Conditions on Lactate Dehydrogenase Released from Perfused Hearts. *International Journal of Cardiology* **127**: 114-116, 2008.
49. Neidra, D.B., Nyman, J.S., Roy, A., Nelson, M.J., Gutierrez, G., Wang, X., and Starnes, J.W. Treadmill exercise plus statin administration increases femur strength in rats. In Review.

### Chapters:

1. Starnes, J.W. Myocardial metabolism during exercise. in *Cardiovascular Response to Exercise*, G.F. Fletcher ed., Futura Publishing, NY, 1993, 3-13.
2. Starnes, J.W. Stress proteins and myocardial protection. In *Exercise and Stress Response: the Role of Stress Proteins*. M. Locke and E. Noble, eds., CRC Press. 2002, pp 97-121.
3. Chicon, E., Starnes, J.W., Kadambi, V., Doherty, C., and LeMasters, J.J. Novel approaches in the evaluations of cardiovascular toxicity. In *Cardiovascular Toxicity* 4<sup>th</sup> Ed., D. Acosta, ed., Informa, Healthcare, New York, NY. pp. 115-132, 2008.
4. Starnes, J.W. Reactive oxygen species in exercise-induced cardioprotection. In *Free Radicals in Biology and Medicine*. C. Gutierrez-Merino and C. Leeuwenburgh, eds. Research Signpost, Kerala, India. pp 251-263, 2009

### ABSTRACTS AND COMMUNICATIONS:

1. Starnes, J.W., Edington, D.W. and Beyer, R.E. Mitochondrial protein synthesis and oxidative phosphorylation in control and overloaded hearts of 5-, 10-, and 15-month-old rats. *Medicine and Science in Sports and Exercise* 10: 69, 1978.
2. Starnes, J.W., Beyer, R.E. and Edington, D.W. Myocardial adaptations to treadmill running in aged rats. *Federation Proceedings* 40: 464, 1981.
3. Beyer R.E., Edington, D.W., Starnes, J.W. Biochemical evidence for a training effect in aged animals. *Medicine and Science in Sports and Exercise* 13: 81, 1981.
4. Starnes, J.W., Beyer, R.E. and Edington, D.W. Age-associated declines in myocardial protein synthesis, aerobic energy metabolism, and physiological performance: Effect of exercise. *Medicine and Science in Sports and Exercise* 14: 106, 1982. **(Winner of ACSM New Investigator Award).**
5. Goldberg, D.I., Starnes, J.W., Sacks, L.M. et al. Effect of propranolol on mitochondrial respiratory changes induced by hypoxia in the isolated heart. *The Physiologist* 25: 192, 1982.
6. Fuller, E.O., Starnes, J.W., Goldberg, D.I. et al. Mitochondrial respiratory activity after acute hypoxia in isolated perfused rat hearts: Time response. *Pediatrics Research* 16: 100A, 1982.
7. Sacks, L.M., Herbert, D.W., Starnes, J.W. et al. Effect of beta-receptor blockade (propranolol) on brain and heart mitochondrial activity of hypoxic guinea pigs. *Pediatrics Research* 16: 100A, 1982.
8. Beyer, R.E., Edington, D.W., Starnes, J.W. et al. Exercise-induced restoration of age-associated declines in exergonic activities in skeletal muscle. *The Gerontologist* 22: 167, 1982.

9. Rumsey, W.L., Kendrick, Z.V. and Starnes, J.W. Oxidative capacity of aged rat skeletal muscle and liver following long-term moderate exercise and caloric restriction. *Medicine and Science in Sports and Exercise* 16: 162, 1984.
10. Starnes, J.W. The aged heart following long-term moderate exercise and caloric restriction. *Northeastern Gerontological Society Annual Meeting*, Philadelphia, April 1984.
11. Starnes, J.W., Wilson, D.F. and Erecinska, M. Substrate dependence of metabolic state and coronary flow in perfused rat heart. *Biophysical Journal* 47: 400A, 1985.
12. Rumsey, W.L., Kendrick, Z.V. and Starnes, J.W. Effects of exercise or caloric restriction on hepatic energy metabolism in aging Fischer 344 rats. *Federation Proceedings* 44: 619, 1985.
13. Starnes, J.W. and Rumsey, W.L. Effect of long-term exercise and caloric restriction on the aging rat heart. *Proceedings of the XIII International Congress of Gerontology* 13: 134, 1985.
14. Starnes, J.W. and Rumsey, W.L. Effect of exercise and diet on heart function and energetics in the aging rat. *Medicine and Science in Sports and Exercise* 17: 213, 1985.
15. Lowenthal, D.T., Chase, R., Parmet, J., Heiman-Patterson, T.D., Starnes, J.W. et al. Fiber distributions in the plantaris muscle of sedentary and exercised rats. *Age* 8: 14, 1985.
16. Starnes, J.W., Sweeney, H.L. and Farrar, R.P. Effects of exercise and aging on rat cardiac myosin. *Federation Proceedings* 45: 750, 1986.
17. Starnes, J.W. & Sweeney, H.L. Strain-related alterations in cardiac myosin isoenzyme expression with aging. *The Gerontologist* 26: 78A, 1986.
18. Daw, C.K., White, T.P. and Starnes, J.W. Impact of aging and training on mass and fiber number of rat soleus muscle. *Medicine and Science in Sports and Exercise* 19: S45, 1987.
19. Starnes, J.W., Cantu, G. and Farrar, R.P. Chronic exercise does not alter lipid peroxidation rate in skeletal muscle of aging rats. *FASEB Journal* 2: 8336, 1988.
20. Bytner, D., Starnes, J. and Farrar, R.P. High affinity choline uptake of hippocampal synaptosomes in response to endurance training. *Medicine and Science in Sports and Exercise* 20: S4, 1988.
21. Bowles, D.K. and Starnes, J.W. Role of adenine nucleotides in control of VO<sub>2</sub>. *Medicine and Science in Sports and Exercise* 20: S65, 1988.
22. Starnes, J.W. and Cantu, G. Effect of life-long caloric restriction or exercise on lipid peroxidation rate in skeletal muscle of aged rats. *The Gerontologist* 28: 137A, 1988.
23. Starnes, J.W. and Terjung, R. Introduction to: Control of aerobic energy metabolism in skeletal muscle. *Medicine and Science in Sports and Exercise* 20: S46, 1989.
24. Starnes, J.W. Interaction of aging, exercise, and diet. *Proceedings of the International Union of Physiological Sciences* 17: 244, 1989.
25. Bowles, D.K., Torgan, C.E., Ebner, S., Kehrer, J.P., Ivy, J.L. and Starnes, J.W. Effects of acute, submaximal exercise on skeletal muscle vitamin E. *Medicine and Science in Sports and Exercise* 22: S74, 1990.
26. Starnes, J.W., Seiler, K.S., Bowles, D.K., Lazzarino, G. and Giardina, B. Effects of fructose-1,6-diphosphate (FDP) on hemodynamics and oxygen consumption of rat heart. *Medicine and Science in Sports and Exercise* 22: S28, 1990.
27. Farrar, R.P., Walters, T.J., Wilkinson, K., Starnes, J.W. and Sweeney, H.L. Increasing oxidative capacity of skeletal muscle does not necessitate an increase in VO<sub>2max</sub>. *Medicine and Science in Sports and Exercise* 22: S136, 1990.
28. Starnes, J.W. and Bowles, D.K. Cytosolic control of mitochondrial respiration in the intact heart. *Biophysical Journal* 59: 330a, 1991.

29. Starnes, J.W., Seiler, K.S., Bowles, D.K., Giardina, B. and Lazzarino, G. Fructose-1,6-bisphosphate (F-1,6-P<sub>2</sub>) improves efficiency of work in the isolated perfused rat heart. *The FASEB Journal* 5: A1426, 1991.
30. Seiler, K.S., Kehrer, J.P. and Starnes, J.W. Increased perfusion pressure improves recovery in hypoxic rat heart. *The FASEB Journal* 5: A1045, 1991.
31. Starnes, J.W., Cheong, E. and Matschinsky, F.J. Hormone secretion of isolated perfused pancreas of exercise trained and food restricted adult rats. *Medicine and Science in Sports and Exercise* 23: S123, 1991.
32. Bowles, D.K., Fordyce, D., Farrar, R.P. and Starnes, J.W. Moderate exercise training and myocardial stunning. *Medicine and Science in Sports and Exercise* 23: S89, 1991.
33. Bowles, DK and Starnes, JW. Cellular responses to myocardial ischemia and reperfusion in the exercise-trained rat. *Medicine and Science in Sports and Exercise* 24: S20, 1992.
34. Starnes, J.W., Seiler, K.S. and Kehrer, J.P. Exogenous glutathione (GSH) prevents myocardial stunning following intermittent hypoxia in isolated rat hearts. *The FASEB Journal* 6: A1341, 1992.
35. Starnes, J.W., Bowles, D.K. and Seiler, K.S. Hypoxia/reoxygenation response in immature, adult and aged rat hearts. *AGE* 15: 137, 1992.
36. Seiler, K.S., Trubek, S. and Starnes, J.W. Brief adenosine exposure during hypoxia is cardioprotective. *The FASEB Journal* 7: A419, 1993.
37. Starnes, J.W., Bowles, D.K. and Seiler, K.S. Myocardial injury after hypoxia in immature, adult and aged rats. *The FASEB Journal* 7: A124, 1993.
38. Starnes, J.W., Seward, S.W. and Seiler, K.S. Intrinsic cardiac function is unaffected by exhaustive exercise in the rat. *Medicine and Science in Sports and Exercise* 26: S , 1994.
39. Starnes, J.W. and Seiler, K.S. Impact of glutathione cardioprotection is dependent on duration of hypoxia. *The FASEB Journal* 9: A590, 1995.
40. Starnes, J.W., Swift, J., Seiler, K.S. and Kehrer, J.P. Depletion and resynthesis of antioxidants following exercise. *Medicine and Science in Sports and Exercise* 28: S30, 1996.
41. Starnes, J.W., Taylor, R.P., Harris, M.B. and Irvine, S. Postischemic cardiac function following three consecutive days of exercise. *Medicine and Science in Sports and Exercise* 29: S142, 1997.
42. Robertson, J.D., Starnes, J.W. and Kehrer, J.P. Reducing cosubstrates involved in reducing cardiac glutathione disulfide. *Fundamental and Applied Toxicology* 36: 299, 1997.
43. Farrar, R.P., Gibson, B., Ong, J. and Starnes, J.W. Effects of heavy and moderate alcohol consumption on diastolic stiffness after ischemia-reperfusion. *Alcohol: Clinical and Experimental Research* 21: 90A, 1997.
44. Gibson, B., Ong, J., Starnes, J.W. and Farrar, R.P. Effects of heavy and moderate alcohol consumption upon cardiac Ca<sup>++</sup> uptake and L-type channels. *Alcohol: Clinical and Experimental Research* 21: 91A, 1997.
45. Starnes, J.W., Taylor, R.P. and Harris, M.B. Myocardial protection following acute exercise. *The FASEB Journal* 12: A712, 1998 (Abstract). presented at EXPERIMENTAL BIOLOGY '98, April, 1998.
46. Starnes, J.W., Mitchell, C.R., Harris, M.B. and Smith, J.C. Effect of body temperature on mitochondrial adaptation during exercise. *Medicine and Science in Sports and Exercise* 31: S306, 1999. Presented at American College of Sports Medicine Annual meeting Spokane WA, June 1999

47. Harris, M.B. and Starnes, J.W. Effect of body temperature during chronic exercise on myocardial HSP72 expression and post-ischemic contractile function. *Medicine and Science in Sports and Exercise* 31: S171, 1999.
48. Starnes, J.W. and Harris, M.B. Changes in myocardial HSP72 and catalase during an exercise program: Effect of body temperature. Presented at American Heart Association Scientific Conference in Salt Lake City, UT August, 1999.
49. Starnes, J.W. and Harris, M.B. Effect of body temperature during exercise on myocardial stress proteins and antioxidant enzymes. *FASEB J.* 2000 APS Fall meetings, Sept. 2000, Portland, Maine.
50. Starnes, JW and Taylor, R.P. Improved tolerance to hydrogen peroxide-induced oxidative stress in aged rat hearts. *Journal of American Aging Association*, July 2001 issue. Presented at Am. Aging Assoc. annual meeting, Madison, WI, June 2001.
51. Taylor, R.P., Ciccolo, J.T., and Starnes, J.W. Effect of exercise training on tolerance to hydrogen peroxide-induced oxidative stress in rat hearts. Presented at Am Heart Assoc. Scientific Conference on Molecular, Integrative and Clinical Approaches to Myocardial Ischemia, Seattle, WA August 2001
52. Starnes, JW, Olsen, D, and Harris, M.B. Time course of changes in cardioprotective proteins following a short-term exercise program. Presented at Am Heart Assoc. Scientific Conference on Molecular, Integrative and Clinical Approaches to Myocardial Ischemia, Seattle, WA August 2001
53. Starnes, J.W., Mathis, B.J., and Taylor, R.P. Effect of age on myocardial response to hydrogen peroxide. *Free Radic Biol Med.* 31: S97, 2001. Presented at Oxygen Society Annual Meeting, Research Triangle Park, NC, Nov. 2001.
54. Taylor, R.P. and Starnes, J.W. Improved cardioprotection against ischemia-reperfusion by exercise is not attenuated by aging. *The FASEB Journal* 16: A443, 2002. Presented at EXPERIMENTAL BIOLOGY 2002, April, 2002.
55. Nelson, M.J., Olsen, D.J., Harris, M.B., and Starnes, J.W. Changes in heat shock protein and antioxidant enzymes following a short-term exercise program. *Medicine and Science in Sports and Exercise* 34: S80, 2002. Presented at American College of Sports Medicine Annual meeting St. Louis, MO, June, 2002.
56. Ciccolo, J.T., Taylor, R.P., and Starnes, J.W. Lack of protection against myocardial ischemia-reperfusion injury following a light exercise conditioning program. *Medicine and Science in Sports and Exercise* 34: S285, 2002. Presented at American College of Sports Medicine Annual meeting St. Louis, MO, June, 2002.
57. Taylor, R.P., Ciccolo, J.T., and Starnes, J.W. Effect of exercise training on tolerance to hydrogen peroxide-induced oxidative stress in rat hearts. *Medicine and Science in Sports and Exercise* 34: S248, 2002. Presented at American College of Sports Medicine Annual meeting St. Louis, MO, June, 2002.
58. Starnes, J.W., Taylor, R.P., and Mathis, B.J. Effect of age on tolerance to oxidative stress by rat hearts. Presented at Am Heart Assoc. Scientific Conference on Advances in the Molecular and Cellular Mechanisms of Heart Failure, Snowbird, UT August 2002.
59. Mathis, B.J., Taylor, R.P., and Starnes, J.W. Tolerance to oxidative stress in aging heart. *Medicine and Science in Sports and Exercise* 35: S154, 2003. Presented at American College of Sports Medicine Annual meeting San Francisco, CA, May, 2003.
60. Taylor, R.P., Nelson, M.J., Delp, M.D., and Starnes, J.W. The interaction of aging and exercise on the expression of heat shock protein. *Medicine and Science in Sports and Exercise* 35: S8, 2003. Presented in Featured Session at American College of Sports Medicine Annual meeting San Francisco, CA, May, 2003.

61. Starnes, J.W., Park, Y., and Harris, M.B. Role of nitric oxide in hydrogen peroxide tolerance by exercise trained rat hearts. *Free Radical Biology and Medicine* 35 Suppl 1: S89, 2003. Presented at Society for Free Radical Biology and Medicine annual meeting Seattle, Wa, November 2003.
62. Nelson, M.J. and Starnes, J.W. The effects of N-2-mercaptopyrionyl glycine (MPG) on exercise-induced cardiac hypertrophy and improvement of function. *The FASEB Journal* 18: A357, 2004. Presented at EXPERIMENTAL BIOLOGY 2004 meeting, Washington, DC, April, 2004.
63. Taylor, R.P., Olsen, M.O., and Starnes, J.W. Late preconditioning following acute exercise is not mediated by nitric oxide synthase in Fischer 344 rats. Presented at 1<sup>st</sup> annual symposium of the American Heart Association's Council on Basic Cardiovascular Sciences: Stress signals, molecular targets, and the genome. Stevenson, WA, July 2004.
64. Starnes, J.W., Park, Y., Mathis, B.J., and Harris, M.B. Exercise-training increases oxidative stress-induced mechanical dysfunction in rat hearts: role of endothelial nitric oxide synthase (eNOS). *The Physiologist*. 47: 283-284, 2004. Presented at the APS Intersociety meeting: Integrative biology of exercise, Austin, TX, October, 2004.
65. Barnes, B.D., Olsen, M., and Starnes, J.W. Exercise training reduces reactive oxygen species production in myocardial mitochondria of rats. *The FASEB Journal* 19: A000, 2005. Presented at EXPERIMENTAL BIOLOGY 2005 meeting, San Diego, CA, April, 2005
66. Starnes, J.W., Taylor, R.P. and Mathis, B.J. Myocardial intolerance to oxidative stress peaks at middle age in male rats. 12th World Congress on Heart Disease - New Trends in Research Diagnosis and Treatment, Vancouver, B.C., Canada, July, 2005.
67. Starnes, J.W., Barnes, B.K. and Olsen, M.E. Hydrogen peroxide production by myocardial mitochondria is reduced by exercise training. 2nd Annual Symposium of the American Heart Association Council on Basic Cardiovascular Sciences-Targeting Heart Failure: New Science, New Tools, New Strategies. Keystone CO, July, 2005.
68. Starnes, J.W. and Nelson, M.J. N-2-mercaptopyrionyl glycine (MPG) attenuates exercise-induced cardiac hypertrophy in the rat. Keystone Symposium: Molecular Mechanisms of Cardiac Disease, Santa Fe, NM, February, 2006
69. Starnes, J.W. Effects of storage time and freezing on the activity of lactate dehydrogenase released from rat hearts. *The FASEB Journal* 20: A1153, 2006 Presented at EXPERIMENTAL BIOLOGY 2006 meeting, San Francisco, CA, April 2006.
70. Starnes, J.W., Barnes, B.D. and Olsen, M.E. Effect of endurance training on myocardial mitochondria responses to calcium overload. *Medicine and Science in Sports and Exercise* 38: S418, 2006. Presented at American College of Sports Medicine Annual meeting, Denver, CO. June 2006.
71. Meaney, M.P., Meissner, M., Willis, R.A., and Starnes, J.W. Exercise and simvastatin interaction on coenzyme Q and cytochrome oxidase in cardiac and skeletal muscle. *Medicine and Science in Sports and Exercise* 38: S4, 2006. Presented at American College of Sports Medicine Annual meeting, Denver, CO. June 2006.
72. Meissner, M., Meaney, M.P., and Starnes, J.W. Interaction of exercise and simvastatin on myocardial ischemia-reperfusion (I-R) injury. *Medicine and Science in Sports and Exercise* 38: S4, 2006. Presented at American College of Sports Medicine Annual meeting, Denver, CO. June 2006.
73. Starnes, J.W., Barnes, B.D. and Olsen, M.E. Effect of endurance training on myocardial mitochondria responses to calcium overload. *Free Radical Biology and Medicine* 38 Suppl 1: S00, 2006. Presented at Society for Free Radical Biology and Medicine annual meeting, November 2006.

74. Nelson, M.J., Cannon, M., and Starnes, J.W. Statin treatment does not affect exercise-induced cardiac hypertrophy (EICH). *The FASEB Journal* 21: A571, 2007 Presented at EXPERIMENTAL BIOLOGY 2007 meeting, Washington, DC April/May, 2007
75. Cannon, M., Meaney, M.P., Meissner, M., and Starnes, J.W. Interaction of exercise and simvastatin on myocardial ischemia-reperfusion (I-R) injury: Role of nitric oxide. *The FASEB Journal* 21: A1222, 2007 Presented at EXPERIMENTAL BIOLOGY 2007 meeting, Washington, DC April/May, 2007.
76. Starnes, J. W., Neidre, D. B. , Nyman, J. S. , Roy, A., & Nelson, M. J. *Positive Interaction of Exercise and Simvastatin on Femoral Strength in Rats*. Presented at American College of Sports Medicine National Conference, Seattle, Washington. June 2009.

#### **INVITED PRESENTATIONS: since 1999**

- “Interaction of exercise and aging on cardiac health and performance”. The Lynn W. McCraw lecture series. University of Texas, September, 1999.
- “Regulation and role of stress proteins during exercise”. Dept. of Health and Kinesiology, Texas A&M University, October, 2000.
- “Exercise and the free radical theory of aging”. Featured Lecture, Annual meeting of American College of Sports Medicine, Texas Chapter. Ft. Worth, Feb. 2001.
- “Careers in exercise physiology”. Dept. of Kinesiology, Southwestern University, Feb. 2001.
- “Exercise and myocardial protection”. Institute for Surgical Research, Fort Sam Houston, Texas, May, 2001.
- “Exercise and aging”. Guest lecturer for Gerontology Studies: The Biology of Aging graduate course, Department of Physiology, University of Texas Health Science Center at San Antonio, October, 2001.
- “Improved cardioprotection against ischemia-reperfusion by exercise is not attenuated by aging.” Selected from submitted poster abstracts for oral presentation as part of Featured Topic: Exercise-induced cardioprotection: Unique insights from cardiac, smooth, and skeletal muscle. EXPERIMENTAL BIOLOGY 2002, New Orleans, April, 2002.
- “Exercise, aging, and cardioprotection”. Dalton Cardiovascular Research Center, University of Missouri, Columbia, MO May, 2002.
- “All about the graduate program in kinesiology at The University of Texas at Austin”. Dept. of Kinesiology, Southwestern University, Georgetown, TX. October, 2002.
- “The aging heart and oxidative stress”. Stevens Visiting Scholar Lecture, Dept. of Exercise and Sport Sciences, University of Florida, Gainesville, FL. November, 2002.
- “Exercise and myocardial protection”. Stevens Visiting Scholar Lecture, Dept. of Exercise and Sport Sciences, University of Florida, Gainesville, FL. November, 2002.
- “The interaction of aging and exercise on the expression of heat shock protein”. Presentation in Featured Session: Cellular Basis of Training-Induced Cardioprotection. American College of Sports Medicine Annual meeting San Francisco, CA, May, 2003.
- “Exercise, aging, and cardioprotection: Response to oxidative stress”. Noll Physiological Research Center, Pennsylvania State University, October, 2003.
- “Oxidative stress and exercise: the good, the bad, and the heart”. Spring Exercise Science Seminar, Dept. of Health and Kinesiology, Texas A&M University, March, 2005.

- “Mechanisms of exercise-induced cardioprotection” Dept. of Exercise and Sport Science, University of Utah, March, 2006.
- “Oxygen transport during exercise” Dept. of Exercise and Sport Science, University of Utah, March, 2006.
- “Exercise-induced cardioprotection”. Symposium presented at the American College of Sports Medicine Annual meeting, Denver, CO. June 1, 2006.
- “Interaction of exercise and statins on heart function” Fall Exercise Science Seminar Series, Dept. of Health and Kinesiology, Texas A&M University, November, 2006.
- “Interaction of exercise and statins on cardioprotection”. School of Applied Physiology, Georgia Tech, November 2006.
- “Interaction of exercise and statins on the heart” Dept. of Applied Physiology and Kinesiology, University of Florida, March, 2007.
- “Which is better for the heart: Exercise, statins or both? Texas ACSM Spring Lecture Tour, University of Texas Medical Branch, Galveston, March 19, 2007
- “How exercise keeps the old heart young”. Texas ACSM Spring Lecture Tour, Texas A&M University at Kingsville, March 20, 2007.
- “How exercise keeps the old heart young”. Texas ACSM Spring Lecture Tour, Texas Lutheran University, March 21, 2007.
- “How exercise keeps the old heart young”. Texas ACSM Spring Lecture Tour, Institute for Exercise and Environmental Medicine, Dallas, March 22, 2007.
- “How exercise keeps the old heart young”. Texas ACSM Spring Lecture Tour, University of North Texas Health Science Center, Ft. Worth, March 23, 2007.
- “Exercise-induced cardioprotection”. (approximate title). Invited speaker Fall 2007 meeting of New England Chapter of ACSM. November 2007
- “Interaction of exercise and statins on the heart” Shanghai University, Shanghai, China, December, 2008.
- “Interaction of exercise and statins on the heart” Shanghai Institute of Sport, Shanghai, China, December 2008.
- “Drugs and exercise: Interaction of statins and exercise on cardioprotection” Kinesiology Colloquium Series, UNC Greensboro, April, 2009.