

Curriculum Vitae

KENNETH HARRINGTON MCKEEVER, Ph.D., FACSM

Department of Animal Science
Cook College
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Rank: Associate Professor, Department of Animal Science

Education:

1985-1987	National Academy of Sciences-National Research Council Resident Research Associate at the NASA-Ames Research Center	Post-Doctoral Training
1981-1984	University of Arizona	Ph.D. Animal Physiology
1979-1981	Fresno State University	M.S. Animal Science
1974-1979	California State Polytechnic University Pomona	B.S. Animal Science

General Fields of Interest: On a basic level my research has focused on comparative exercise and cardiovascular physiology with a particular interest in baroreceptor function and renal and neuroendocrine control of blood pressure, blood volume and fluid and electrolyte balance. On an applied level, my research has focused on the effects of ergogenic (performance enhancing) practices on the physiological responses of the equine athlete.

Personal Information:

Date of Birth: July 16, 1956

Place of Birth: Kearny, New Jersey

Marital Status: Married

Spouse: Jennifer Marie McKeever

Children: Nicole Marie McKeever Date of birth: March 5, 1983

.. Natalie Michele McKeever Date of birth: December 19, 1985

Professional Experience:

- 2002- **Associate Director for Research.** Equine Science Center, Department of Animal Science, Cook College, Rutgers, The State University of New Jersey, New Brunswick, NJ.
- 1995- **Associate Professor (Tenure Granted 7/1/1998).** Department of Animal Science, Cook College, Rutgers, The State University of New Jersey, New Brunswick, NJ.
- 1999- **Full Member.** Graduate Program in Physiology and Integrative Biosciences.
- 1995- **Full Member.** Graduate Program in Animal Sciences
- 1989-1994 **Assistant Professor and Co-Director of the Equine Exercise Physiology Program.** Department of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University.
- 1989-1994 **Assistant Professor (Regular, No Salary, Joint Appointment).** School of Health Physical Education and Recreation. The Ohio State University, Columbus, OH.
- 1988-1989 **Instructor (Non-Tenure Track, Joint, Non-Salary, Regular Appointment).** School of Health Physical Education and Recreation. The Ohio State University.
- 1987-1989 **Instructor (Non-Tenure Track, Regular Appointment)** Co-Director of the Equine Exercise Physiology Program. Department of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University, Columbus, OH.
- 1986-1987 **National Academy of Sciences-National Research Council Resident Research Associate.** Cardiovascular Research Lab, NASA-Ames Research Center, Moffett Field, CA.
- 1985-1986 **National Aeronautics and Space Administration Post-Doctoral Research Associate.** Cardiovascular Research Laboratory, NASA-Ames Research Center, Moffett Field, CA.
- 1985-1987 **Night Custodian.** Bayshore Animal Hospital, San Mateo, CA.
- 1985-1985 **Substitute Teacher.** Tulare County Department of Education, Porterville, Visalia, Tulare, and Lindsay School Districts.
- 1/85-3/85 **Staff Research Assistant.** University of Arizona, Department of Animal Sciences, Tucson, Arizona.
- 1983-1984 **Graduate Research Associate.** University of Arizona, Department of Animal Sciences, Tucson, AZ.
- 1981-1984 **Manager.** University of Arizona Equine Research Center, Department of Animal Sciences, University of Arizona Agricultural Experiment Station, Tucson, AZ.
- 1981-1981 **Assistant Manager.** Post Time Thoroughbred Ranch, Road 184, Tulare, CA.
- 1980-1981 **Graduate Research Assistant.** Department of Animal Sciences, California State University Fresno, CA
- 1975-1979 **Lifeguard, Summer Youth Program Aquatics Supervisor, and Pool Maintenance Worker.** California State Polytechnic University, Pomona, CA.
- 1973-1975 **Aquatics Director and Swim Coach,** Yorba Linda Country Club, Yorba Linda, CA.
- 1971-1973 **Driving Range, Cart Room Worker, and Dishwasher,** Yorba Linda Country Club, Yorba Linda CA.

Awards and Honors:

- 2005 Rutgers College Office of Recreational Services - Volunteer of the Year Award.
- 2003 The George Fleming Prize commemorating the founder of *The Veterinary Journal*, Professor George Fleming (1833-1901); awarded for the paper that is the most meritorious published in the *Journal* during the year. Judged on scientific content and originality, style and readability, and contribution to scientific and veterinary knowledge.
- 2003 Graduate Program in Animal Sciences - Faculty Service Award
- 2003 Who's Who in Education
- 2002 Who's Who in Medicine and Healthcare
- 1997 Executive Dean Cook College-NJAES Team Building Award
- 1996 Who's Who in Science and Engineering
- 1990 Fellow American College of Sports Medicine - *first to earn this distinction based on Equine Exercise Physiology research*
- 1988 Central Ohio Heart Association 1988 Young Investigator Award
- 1986 National Academy of Sciences-NRC/NASA Resident Research Associateship
- 1985 NASA Post-Doctoral Research Associateship
- 1981 University of Arizona Graduate Tuition Scholarship
- 1979 Moorman Feed Manufacturing Company of California Scholarship
- 1980 United States Agency for International Development -Board for Food & Agricultural Development Graduate Fellowship
- 1980 Fresno Ag-1 Foundation Graduate Student Scholarship.
- 1974 Four varsity letters - Goaltender on Cal Poly Pomona's California Collegiate Athletic Association conference champion water polo team during its championship seasons: 1974, 1975, 1976, 1977.
- 1974 Honors at Entrance, Cal Poly Pomona.
- 1974 Air Force JrROTC - American Legion Scholastic Merit Award
- 1973 All Orange League Water Polo Team, Goaltender
- 1973 Eagle Scout with Silver Palm

Professional/Academic Association Memberships:

- 1985 American College of Sports Medicine (Fellow, 1990).
- 1984 American Society of Animal Science.
- 1992 American Physiological Society.
- 1992 Federation of American Societies of Experimental Biology.
- 1995 Advisory Board-International Association of Equine Professionals
- 1987 Association for Equine Sports Medicine.
- 1984 Equine Science Society (formerly - Equine Nutrition and Physiology Society).
- 1984 Sigma Xi.

Reviewing and Editorial Service:

Editorial Advisory Boards

- 2004-Present Editor-in-Chief - International Journal of Kaatsu Training Research
- 2006-Present Executive Board-The Veterinary Journal (formerly The British Veterinary Journal).
- 2006-Present Associate Editor for North American - Equine and Comparative Exercise Physiology
- 2006-Present Editorial Board - Domestic Animal Endocrinology.
- 1997-Present Editorial Board-Journal of Equine Veterinary Science.
- 2002-2005 Editorial Board-Equine and Comparative Exercise Physiology - The International Journal of Animal Exercise Physiology, Biomechanics, and Nutrition..
- 2003-2005 Editorial Advisory Board - The Veterinary Journal.
- 2001-2002 Editorial Board-Equine Science International
- 1999-2001 Board of Scientific Reviewers - American Journal of Veterinary Research
- 1993 Exercise Physiology Section Editor - Proceedings 13th Equine Nutrition and Physiological Society Symposium.

Grant Proposal Referee

- External Grant Proposal Referee, Georgian National Science Foundation (GNSF)
- External Grant Proposal Referee, Horserace Betting and Levy Board, Veterinary Advisory Committee, London, UK
- External Grant Proposal Referee, Austrian Science Fund (FWF)
- External Grant Proposal Referee, University of Guelph/OMAFRA/EP Taylor/OHRIA Equine Research Program
- External Grant Proposal Reviewer - State of Minnesota Racing Commission.

Ad Hoc Scientific Journal Referee

- Pharmacology and Experimental Therapeutics
- Biopolymers
- Muscle and Nerve
- Equine Veterinary Education
- Canadian Journal of Applied Physiology
- Medicine and Science in Sport and Exercise
- Veterinarni Medicina (Vet Med - Czech) International Journal for Veterinary and Biomedical Sciences
- Domestic Animal Endocrinology
- Editorial Board-Equine and Comparative Exercise Physiology
- British Journal of Sports Medicine.
- The Veterinary Journal (formerly The British Veterinary Journal)
- Journal of Applied Physiology
- American Journal of Physiology
- Journal of the American Veterinary Medical Association
- Equine Veterinary Journal
- International Journal of Sports Medicine
- Journal of Veterinary Internal Medicine

- Journal of Equine Veterinary Science
- Respiration Physiology
- Horse Industry Handbook
- Cornell Veterinary Journal
- Refereed Proceedings 3rd International. Conference on Equine Exercise Physiology.
- Exercise Physiology Section-Proceedings 12th Equine Nutrition and Physiological Society Symposium.
- Abstract Referee - American College of Sports Medicine, 1994 and 1995 Programs.
- Abstract Referee - Equine Nutrition & Physiological Society Symposium, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005.

Other Service and Professional Assignments:

External Service to the Equine Industry

- 2003- Representative - Racing Medication and Testing Consortium.
- 2002- Representative- New Jersey Department of Agriculture Equine Advisory Board.
- 2001- Expert Advisor - New York State Racing and Wagering Board - Medication Advisory Committee.
- 2000- Expert Witness/Consultant -Maryland Attorney General and the Maryland Racing Commission.
- 1998- Expert Witness/Consultant -New Jersey Attorney General and the New Jersey Racing Commission.
- 2006 Television interview for “Pet Stop” on News 12 New Jersey.
- 2006 Extended interview for an American Physiological Society press release on the physiology of the Kentucky Derby. Item picked up on a couple dozen online and paper outlets.
- 2005 Session Chair - Exercise Physiology, 19th Equine Science Society Symposium.
- 2005 Grad. Competition Judge (Production & Extension)-19th Equine Science Society Symp.
- 2005 Chair - Exercise Physiology Program Committee, 19th Equine Science Society Symp.
- 2003 Extended interview regarding test for EPO misuse for Equus Magazine.
- 2003 Extended interview regarding test for EPO misuse for Bloodhorse Magazine.
- 2003 Session Chair - Exercise Physiology, 18th Equine Nutrition & Physiology Society Symp.
- 2002 Session Chair - 6th International Conference on Equine Exercise Physiology.
- 2001 Interview for article on clenbuterol for Equus Magazine.
- 2001 Interview for article on clenbuterol for the Horsemen’s Journal.
- 2000 Host 20th Association of Equine Sports Medicine Meeting,, New Brunswick, NJ.
- 2000 Host 5th Conference of Equine Exercise Physiology Researchers, New Brunswick, NJ.
- 1998 Session Chair 5th International Conference on Equine Exercise Physiology, Japan.
- 1996-2000 Organizing Committee - Conference of Equine Exercise Physiology Researchers, Columbus, OH, E. Lansing, MI, Pullman, WA, and Rutgers.
- 1996-2000 Horse Judge, NJ Department of Agriculture Festival of Horses, Standardbred show.
- 1996-2003 Cook College Campus Agricultural Animal Faculty Advisory Committee.
- 1993-2000 NIH/ADAMAHA Peer Review Consultant

- 1993-1997 Awards and Graduate Student Competition Committee, Equine Nutrition and Physiological Society.
- 1990-1995 Editorial Committee - Horse Industry Handbook
- 1993 Invited Panelist - Rolex Kentucky Horse Park 3-Day Event Symposium on Exercise Physiology Research Directions for the 1996 Olympics in Atlanta.
- 1993 Chair - Exercise Physiology Program Committee 13th Equine Nutrition and Physiology Society Symposium.
- 1990 Invited Panelist - Symposium on Exercise Testing Methods - 3rd ICEEP, Uppsala, Sweden (One of 5 panelist from around the world invited to sit on this committee)
- 1988 Lecturer - American Heart Association Central Ohio Affiliate Speakers Bureau.
- 1988 Question Writer - American College of Veterinary Internal Medicine Qualifier Exam.

Service to the University

- 2001-Present Representative - New Brunswick Faculty Council, Rutgers University.
- 2001-Present Member - Graduate and Professional Studies Committee - New Brunswick Faculty Council, Rutgers, the State University of New Jersey.
- 2000-Present Senator - University Senate, Rutgers, the State University of New Jersey.
- 2000-Present Member - University Senate Budget and Planning Committee.

Service to the College

- 2000-2001 Rutgers-NJAES Strategic Planing Sub-Committee.
- 2002-2003 Cook College Admissions and Scholastic Standing Committee.
- 1996-1998, 2003 Cook Scholars Program, session chair.
- 1996-1998 George H. Cook Honors Program Adjunct Committee Member.
- 1993 Faculty Search Committee - Appointed by the OSU Vice President for Student Affairs to fill position of Director of Recreation and Intramural Sports.
- 1989 Faculty Search Committee - School of Health, Physical Education, Recreation, OSU.
- 1988-1994 Ohio State University Alice L. Finley Memorial Research Center Committee.
- 1988-1990 Coordinator of the Comparative Physiology and Pharmacology Seminar.

Service to the Department

- 2005-Present Department Chair's Advisory Committee
- 2002-2006 Chair Standards Committee - Animal Science Graduate Program, Rutgers University.
- 2006-Present Member - Standards Committee - Animal Science Graduate Program, Rutgers Univ..
- 1998-2003 Animal Science Graduate Program Admissions Committee.
- 2001 Faculty Search Committee - Genetics/Genomics Position.
- 2001 Present Faculty Search Committee - Endocrinology/Transgenics Position.
- 1989 Faculty Retreat Graduate and Residency Program Review Committee.

Research Support:

Start-up funding came from the New Jersey State Equine Initiative at approximately \$140,000/yr for four years (1995-1998). Funding provided to develop the Rutgers Equine Exercise Physiology Laboratory.

Grants and Contracts Funded (PI or Co-PI):

2007 - Principal Investigator (McKeever). Effect of various flavor enhancers on the palatability of Equifit liquid vitamin and mineral supplement, Alpharma, Inc., \$7,500.

2006 -2008, Lead Principal Investigator (K.H. McKeever), Managing Principal Investigator (W. Franke), Co-Principal Investigators (N. Vorsia, T Ho, Chan, D. Fong, M. Rafi) W911QY-07-C-0007 “*Combat Ration Supplements for Improved Cognitive and Physical Performance.*” US Army Natick Soldier System Center, Natick, MA., Total Costs: **\$750,000.**

The main part of this project focuses on black tea and cranberry extracts which were shown to suppress the inflammatory response to exercise in horses. The horse will be used as an intermediate animal model to conduct involve dose response trials to determine the effects of the extracts mRNA expression for the cytokines in blood and muscle as well as electron microscopy. The primary hypothesis is that the extracts will suppress markers of delayed onset muscle soreness. A second focus project will be to examine the *in vitro* effects of extracts on glial cell inflammation. In vivo measurements in the horse will also test the hypothesis that the extracts will alter exercise-related response of hormones associated with stress and the hypothalamic-pituitary-adrenal axis.

2006 - Principal Investigator (McKeever). Palatability of an electrolyte and yeast extract supplement, Alpharma, Inc., \$5,000.

2006 - Principal Investigator (McKeever). Evaluation of the cooling efficacy of a Send Generation “Extend-a-Cool” Transdermal Cooling System. Alpharma, Inc., \$1,500.

2006 - Principal Investigator (McKeever) Horse usage for normal blood samples. Merial Pharmaceutical, Ltd, \$2,000.

2002-2005, Co-Principal Investigator (Rosen, Franke, McKeever, Ho, Fong, Chan, Rafi, Huang, Ghai) “*Combat Ration Supplements for Improved Cognitive and Physical Performance.*” US Army Natick Soldier System Center, Natick, MA. DAAD 16-02-C-05 and DAAD 16-03-C055. Contract Total Costs for yrs 2-3: **\$619,890**, McKeever subcontract total costs: **\$141,333.**

The first year of this project used cell cultures and a rat ear inflammation model to show that a dozen food extracts were efficacious in suppressing inflammation. McKeever was responsible for convincing the Army that the horse was an excellent animal model for performance studies rather than using rats. The equine performance studies were key to attracting funding in yrs 2-3.

2005 - Principal Investigators: (Bagnell, McKeever, Williams) Inflammation in horses and cytokine assay development. NJAES-Special Initiative on Equine \$79,000.

2003 - Principal Investigators (Gordon and McKeever) The effects of exercise and ghrelin administration on food intake and endocrine parameters of energy homeostasis in Standardbred mares NJAES-Special Initiative on Equine \$40,000.

2003 - Principal Investigators (Watford, Manso, McKeever) Regulation of fuel homeostasis in the horse during pregnancy, lactation and development. NJAES-Special Initiative on Equine. \$10,000.

2002 - Principal Investigator (Malinowski, McKeever, Gordon) Care of the aging equine athlete. Bernice Barbour Foundation. \$6,400.

2002 - Principal Investigators (McKeever and Lorimer) Do Artificial Oxygen Carriers Enhance Performance and Can We Detect Their Use in Horses? NJAES-Special Initiative on Equine. \$40,000.

2002 - Principal Investigators (Watford, Manso, McKeever) Regulation of skeletal muscle glucose metabolism in the horse: effects of development and exercise. NJAES-Special Initiative on Equine. \$43,000.

2002 - Principal Investigators (Gordon, Malinowski, and McKeever) The regulation of energy homeostasis in the horse. NJAES-Special Initiative on Equine. \$49,000.

- 2001 - Principal Investigator (McKeever)** Effects of acid blocking therapies on plasma tCO₂ concentration and markers of performance in Standardbred horses NJAES-Special Initiative on Equine. \$51,000.
- 2000 - Principal Investigator (McKeever, Malinowski)** Do electrolyte supplements alter plasma TCO₂ concentrations in Standardbred horses? NJAES-Special Initiative on Equine. \$59,000.
- 2000 -Co-Principal Investigator (Malinowski, McKeever)** Effect of age on the glucose insulin response to exercise in Standardbred mares. NJAES-Special Initiative on Equine. \$36,000.
- 2000-Principal Investigator (McKeever, Lorimer, Cook)** An Equine Specific Transferrin Receptor Assay. Association of Racing Commissioners International, \$22,400.
- 1999 - Principal Investigator (McKeever, Kearns, Malinowski)** Does clenbuterol treatment alter muscle performance and aerobic capacity in the horse. NJAES-Special Initiative on Equine. \$55,000.
- 1999 - Co-Principal Investigator (Malinowski, Boyadjieva, Guirnalda, McKeever)** Effect of exercise training and clenbuterol on immune function in the horse. NJAES-Special Initiative on Equine.\$55,000.
- 1999 - Principal Investigator (McKeever)** Development of a new model for inducing arthritis. Merck Research Labs, \$20,000.
- 1998 - Principal Investigator: (McKeever)** Does enalapril alter pulmonary artery pressure and performance? A possible new treatment for EIPH. NJAES-Special Initiative on Equine. \$30,000.
- 1997 - Principal Investigator: (McKeever and Lorimer)** Methods to detect prior rhuEPO use. Association of Racing Commissioners International. \$25,500.
- 1996 - Principal Investigator: (McKeever)** Development of methods to detect prior EPO use. NJAES-Special Initiative on Equine. \$33,000.
- 1996 - Principal Investigator: (McKeever)** Methods to detect prior EPO use. Earle I. Mack Charitable Trust. \$3,500.
- 1996 - Principal Investigator: (McKeever)** Development of methods to detect prior EPO use. New York Thoroughbred Horseman's Association. \$10,000.
- 1996 - Principal Investigator: (McKeever, Malinowski, Ralston, Hafs)** Measures of exercise performance in geriatric mares undergoing chronic treatment with equine somatotropin (eST) Bresagen, Inc.. \$6,400.
- 1995 - Principal Investigator: (McKeever)** Erythropoietin dying to win? Effects on maximal aerobic capacity, blood pressure, and cardiovascular function. NJAES-Special Initiative on Equine. \$16,000.
- 1995 - Principal Investigator: (McKeever)** Erythropoietin dying to win? Effects on maximal aerobic capacity, blood pressure, and cardiovascular function. Rutgers Research Council, \$800.
- 1995 - Principal Investigator: (McKeever)** Endothelin response to exercise in young and geriatric female horses. ORSP-Busch Biomedical Research Program, \$8,940.
- 1993 - Principal Investigator: (McKeever, Hinchcliff, Robertson)** Effect of oral erythropoietin on blood volume in horses. Amarillo Cell Culture, Inc. \$3,200.
- 1993 - Co-Principal Investigator: (Beard, Holcombe, McKeever, Hinchcliff)** Effect of Staphylectomy on airflow mechanics in horses. Ohio Standardbred & Thoroughbred Research Fund. \$15,124.
- 1992 - Co-Principal Investigator: (Hamlin, Bonagura, McKeever)** Effect of an atriopeptidase inhibitor on the neuroendocrine control of cardiovascular function in dogs with heart failure. Source: Bayer Pharmaceutical Company. Direct costs: 1st year \$250,000.

Dr. McKeever devoted 50% effort with Drs. Hamlin and Bonagura listed at 35% and 25% respectively. McKeever directed the neuroendocrine tests; conducted and interpreted exercise stress tests, performed and interpreted the RIA for PRA, vasopressin concentration and plasma and urine concentrations of ANP and cyclic-GMP.

1992 - Co-Principal Investigator: (McKeever/Hinchcliff, Farris, Lamb) Serotonin & hormonal responses to prolonged exercise: effect of glucose infusion. Ohio Standardbred and Thoroughbred Funds. \$19,681.

1992 - Co-Investigator: (Hamlin, Bonagura, McKeever) Clinical trial to prove efficacy of Enalapril to improve exercise tolerance in dogs with heart failure. Merck, Inc., \$70,000.

1992 - Co-Principal Investigator: (Lombardo/McKeever, Heck, Whitehead, Auge, Hinchcliff, Alway) Anabolic steroids and anaerobic training. Department of Family Medicine Funds, \$12,000.

1991 - Principal Investigator: (McKeever, McNally, Hinchcliff, Reed, Robertson) Effect of erythropoietin on maximal aerobic capacity. Ohio Standardbred & Thoroughbred Funds. \$13,400.

1990 - Principal Investigator, (McKeever) University Seed Grant, Hemodynamics, atrial natriuretic peptide, and vasopressin in intact and splenectomized horses during exercise". \$15,000.

1990 - Principal Investigator, (McKeever) Development Fund Grant, Columbus Instruments, Inc. \$1,000.

1990 - Principal Investigator (McKeever) National Aeronautics and Space Administration. Plasma atrial natriuretic peptide concentration in monkeys and horses. NASA RTOP199-14-12-11; \$2,200.

1989 - Principal Investigator: (McKeever, Hinchcliff, Reed, Lamb, Muir) Endocrine changes during exercise in horses. Ohio Animal Health Trust. \$4,996.

1989 - Principal Investigator: (McKeever, Hinchcliff, Reed, Lamb, Muir) Hormonal changes and exercise in the horse. Ohio Standardbred and Ohio Thoroughbred Research Funds. \$2,117.

1989 - Principal Investigator: (McKeever, et al.) Hematocrit and plasma volume alterations during submaximal exercise in intact and splenectomized horses. OH Standardbred and OH Thoroughbred Research Funds. \$9,560.

1989 - Principal Investigator, (McKeever) Validation of Equine Heart Rate Meters. Exercise Physiology Development Fund Grant from Mr. and Mrs. Myron Stepath. \$1,000.

1988 - Principal Investigator: (McKeever) Cardiovascular, fluid & electrolyte, & endocrine responses to the first week of exercise training in horses. Central Ohio Heart Assn Young Investigator Award \$25,000.

1985-1987 - Co-Principal Investigator (Sandler and McKeever) Cardiovascular responses to simulated weightlessness in non-human primates. NASA RTOP #199-21-12-01. \$380,000. Grant funded Dr. McKeever's research as a National Research Council Resident Research Associate.

Grants and Contracts Funded - Co-Investigator:

1996 - Co-Investigator:(Malinowski, Christensen, Hafs, Ralston, McKeever) Effects of Equine Somatotropin in Geriatric Mares. Bresagen, Inc. \$92,500.

1993 - Co-Investigator: (Kohn, Hinchcliff, McKeever) Effect of ambient temperature and humidity on performance in exercising horses. American Horse Shows Association. \$33,039.

1993 - Co-Investigator: (Kohn, Hinchcliff, McKeever) Effect of total body washing with cool water on heat dissipation in horses exercised at 32.2 °C and 90% humidity. Amer. Horse Shows Assn \$5,658.

1991 - Co-Investigator: (Beard, Holcombe, McKeever, Hinchcliff) Effect of Sternothyroid myectomy on airflow mechanics in normal and clinically affected horses. OH Standardbred/Thoroughbred Res. Fund. \$15,725.

1991 - Co-Investigator (Hinchcliff, McKeever, Muir, Sams) Furosemide and Phenylbutazone in Performance Horses: Drug Interactions & Effects on Performance. Grayson Foundation. \$150,000.

1991 - Co-Investigator: (Hinchcliff, McKeever, Reinhardt) Energy expenditure, water flux, body composition changes during sustained running in sled dogs. Iams Corp. \$16,861.

1991 - Co-Investigator (Hinchcliff, McKeever, Muir, Sams) Does Na⁺ bicarbonate improve athletic

performance in horses? Ohio Standardbred & Thoroughbred Research Funds. \$11,573.

1990 - Co-Investigator (Hinchcliff, McKeever, Muir) Thermoregulatory Responses to Running: Effect of Furosemide. Ohio Standardbred and Ohio Thoroughbred Research Funds. \$12,624.

1990 - Co-Investigator: (Kohn, Fenger, Hinchcliff, McKeever) Relationship between O₂ consumption & Hb saturation. Ohio Standardbred and Thoroughbred Research Funds. \$7,880.

1989 - Co-Investigator: (Cooley, McKeever, Lamb, Hinchcliff, Muir) Furosemide and exercise: Hormonal response in the horse. Ohio Standardbred and Thoroughbred Research Fund. \$2,913.

1989 - Co-Investigator: (Hinchcliff, Muir, McKeever) Furosemide and exercise: Renal and extra-renal effects in exercising horses. Ohio Standardbred and Thoroughbred Research Funds. \$11,841.

1988 - Co-Investigator: (Bramlage, Schneider, Hardy, Weisbrode, McKeever) Effects of exercise on articular cartilage repair in the horse. American Quarter Horse Assn.. \$16,500.

1988 - Co-Investigator: (Hinchcliff, Muir, McKeever) Effect of phenylbutazone on selected physiological and biochemical responses to exertion in horses. Ohio Standardbred & Thoroughbred Research Funds. \$14,900.

Equipment and Other Gifts

Merial Pharmaceutical, Ltd Donation of Gastroguard valued at \$8,000

Merial Pharmaceutical, Ltd Donation of Enalapril valued at \$2,000

Ortho Biotech donated a new hemostasis analyzer valued at \$30,000.

Merck, Inc. laboratory instruments (gamma counter, chart recorders, balances, infusion pumps, refrigerated centrifuge, spectrophotometer, HP plotters, microplate reader, laser flow meter, etc.) estimated value of \$75,000

Ortho-McNeal donated several laboratory instruments (2 eight channel Gould chart recorders, 2 Buxco hemodynamic analyzers, 2 flow meters, HP plotter, etc.) with an estimated value of \$65,000

Ohmeda, Inc. (British Oxygen Corp.) donated several labry instruments (two hot plate/stirrers, 1 new 4 channel Grass chart recorder with several physiological transducers, 1 Buxco hemodynamic analyzer, 1 vortex, new set of Eppendorf pipettes and stand, etc.) with an estimated value of \$45,000

Horse owners donated 10 mares to the Exercise Physiology program.

Publications:

Books:

1. **Hodgson D, McKeever, K.H. and C. McGowan** The Athletic Horse 2nd Edition, Elsevier, Philadelphia, In Preparation., 2007.

Book Chapters:

1. **McKeever, K.H. and M.E. Gordon** Hormonal responses to exercise and training. In: Principles and Practice of Equine Sports Medicine: The Athletic Horse 2nd Edition, Eds. D. Hodgson & R. Rose, Saunders, Philadelphia, In Preparation., 2007.
2. **McKeever, K.H.** Physiology of body fluids in the equine athlete. *Equine Exercise Physiology* Eds: K. Hinchcliff, A. Kaneps, R. Geor, Elsevier, Philadelphia, Chpt. 6.1, (In Press), 2007.
3. **McKeever, K.H. and M.E. Gordon** Endocrine alterations in the equine athlete. *Equine Exercise Physiology* Eds: K. Hinchcliff, A. Kaneps, R. Geor, Elsevier, Philadelphia, Chpt. 5.2, (In Press), 2007.
4. **McKeever, K.H.** Aging and how it affects the response to exercise in the horse. In: *Equine Geriatric Medicine and Surgery*, Ed: J. Bertone, Elsevier, Philadelphia, pp. 69-78, 2005.
5. **McKeever, K.H.** Does it Work? Testing the efficacy of feed supplements In: *Advances in Equine Nutrition III* Ed. Joseph D. Pagan. Nottingham University Press, Nottingham UK, pp. 65-68, 2005.
6. **McKeever, K.H.** Can feed cause a positive blood test in racehorses? In: *Advances in Equine Nutrition III* Ed. Joseph D. Pagan. Nottingham University Press, Nottingham UK, pp. 68-76, 2005
7. **McKeever, K.H.** Body fluids and electrolytes: responses to exercise and training. *Equine Sports Medicine and Surgery: Basic and Clinical Sciences of the Equine Athlete* Eds: K. Hinchcliff, A. Kaneps, R. Geor, Elsevier, Philadelphia, Chpt. 38, p. 853-871, 2004.
8. **McKeever, K.H. and M.E. Gordon** Endocrine alterations in the equine athlete. *Equine Sports Medicine and Surgery: Basic and Clinical Sciences of the Equine Athlete* Eds: K. Hinchcliff, A. Kaneps, R. Geor, Elsevier, Philadelphia, Chpt. 35, pp. 793-814, 2004
9. **McKeever, K.H.** Exercise physiology of the older horse. In: *Veterinary Clinics of North America: Equine Practice; Geriatrics*, edited by J.M. MacLeay, W.B. Saunders, Philadelphia, Vol. 18:469-490, 2002.
10. **McKeever, K.H.** The endocrine system and the challenge of exercise. In: *Veterinary Clinics of North America: Equine Practice; Equine Endocrinology*, eds Messer, N.T. and P.J. Johnson. Saunders, Philadelphia, Vol. 18:321-354, 2002.
11. **McKeever, K.H.** Effect of exercise on fluid balance and renal function in horses. In: *Veterinary Clinics of North America: Equine Practice; Fluids, Electrolytes and Thermoregulation in Horses*, ed. K.W. Hinchcliff. Vol. 14: 23-44, 1998.
12. **McKeever, K.H.** Electrolyte and water balance in the exercising horse, In: *Nutrition Manual for Veterinarians*. American Association of Equine Practitioners and Purina Mills, Inc., St. Louis, Mo. Chapter 10, pp. 79-86, 1997.
13. **McKeever, K.H.**, Water and electrolytes and the prevention of thermal injuries. *Horse Industry Handbook*, American Youth Horse Council, Lexington, Chpt. 8, pp 861-863, 1994.
14. **McKeever, K.H.** Sympatholytic and Sympathomimetics. In: *Veterinary Clinics of North America: Equine Practice; Drug use in Performance Horses*, eds. K. Hinchcliff & R. Sams. Saunders, Philadelphia, Vol. 9, pp 635-647, 1993.

Journal Articles:

15. **Causey, R., H.C. Manso, Filho, R.A. Lehnhard, and K.H. McKeever.** Maternal and fetal heart rates during exercise in horses. *Medicine and Science in Sport and Exercise* (Manuscript completed and in final preparation for submission), 2007.
16. **Manso, Filho, H.C., C.L. Betros, M.E., Gordon, H. Costa, M. Watford, K.H. McKeever.** Effect of Training and Age on Glutamine, Glut-4, and Glutamine Synthetase in Skeletal Muscle in Horses. *Equine and Comparative Exercise Physiology* (Manuscript completed and in final preparation for submission), 2007.
17. **Ciolino, D., J. Alberici, and McKeever, K.H.** Effect of Gastrogard on plasma tCO₂ concentration in Standardbred horses. *Journal of Equine and Comparative Exercise Physiology*. (Manuscript in Preparation), 2007.
18. **Norton, R., McKeever, K.H., and Kearns, C.F.** Effects of ephedra on cardiopulmonary function during and following exercise. *Medicine and Science in Sport and Exercise* (Manuscript in Preparation), 2007.
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133. **McKeever, K., K. Hinchcliff, S. Reed, J. Robertson.** Role of decreased plasma volume in hematocrit alterations during incremental treadmill exercise in horses. *Proc. 13th Equine Nutr. Physiol. Soc. Symp.*, pp. 130-131, 1993.
134. **Hinchcliff, K.W., K.H. McKeever, W. Muir, R. Sams** Effect of oral sodium loading on acid:base responses of horses to intense exertion. *Proc. 13th Equine Nutrition and Physiology Society Symp.*, Gainesville, FL, pp. 121-122, 1993.
135. **Hinchcliff, K.W., K.H. McKeever, L.M. Schmall, C.K. Fenger.** Effect of hypertonic saline administration on blood and plasma volume of normal horses. *Proceedings ACVIM 9th Annual Veterinary Medicine Forum*, pp. 387-388, 1991.
136. **Hinchcliff, K.W., K.H. McKeever, L.M. Schmall, C.K. Fenger.** Hypertonic sodium chloride-induced plasma and blood volume of horses. *Proceedings of the 7th Veterinary Midwest Anesthesia Conf.*, 1991.
137. **McKeever, K.H., W.A. Schurg, S.H. Jarrett, V.A. Convertino.** Plasma volume expansion and renal control mechanisms following chronic submaximal exercise training. *Proceedings 9th Equine Nutrition and Physiol. Society Symposium*, East Lansing, MI, pp. 212-217, 1985.
138. **McKeever, K.H. and W.A. Schurg.** Exercise training-induced hypervolemia in greyhound dogs: the role of water intake, urine output, glomerular filtration rate, osmolar clearance, and free water clearance. *Proc. 35th Western Section of American Society Animal Science Mtg*, pp. 206-207, 1984.
139. **McKeever, K.H., G. Heusner, D. Sperling.** Quarter Horse foal growth, effect of month of birth age of dam and sex of foal. *Proc. 7th Equine Nutrition and Physiol. Society Symp.*, pp.149-155, 1981.

Completed Projects and Manuscripts in Preparation with Intended Journal:

1. **McKeever, K.H., P. Lorimer, C. Prange and G.A. Maylin.** The goal of this research has been to develop tests to detect the administration of human recombinant erythropoietin to horses. The investigator is collaborating with Philip Lorimer, Director of the New Jersey State Police Equine Drug Detection Laboratory; Charles Prange from Testing Components, Inc.; and Dr. George Maylin, Director of the NY Racing Commission Equine Drug Detection Lab at Cornell University. The team has developed and deployed a test that detects antibodies to the human EPO molecule. In development is a secondary test to measure plasma transferring receptor concentrations as another marker of EPO administration. Over the past several years the methods have been used by NJ, NJ, TX, VA, IN, IL, MD, DE, and several other international jurisdictions.
2. **Lorimer, P. J. Yang, C.F. Kearns, and K.H. McKeever** Detection of clenbuterol in horse plasma by ELISA after anabolic doses. *J Vet. Pharmacology and Therapeutics*.
3. **McKeever, K.H.** Age related changes in plasma, red cell and blood volume in the horse. *American Journal of Physiology* (In Preparation).
4. **McKeever, K.H. and T. Eaton.** Aging-induced changes in thermoregulation in the horse. *American J. of Physiology* (In Preparation).
5. **McKeever, K.H.** Acute volume load during exercise: hemodynamic, ANP, and AVP response in intact and splenectomized horses. *Journal of Applied Physiology* (In Preparation)..
6. **McKeever, K.H.** Plasma volume and electrolyte alterations during submaximal exercise in intact and splenectomized horses. *Journal of Applied Physiology* (In Preparation).
7. **McKeever, K.H., L.C. Keil, H. Sandler.** Hemodynamic response to different levels of water immersion in denervated monkeys. *Aviat Space Environ Med* (In Preparation)..
8. **Geiser, S., K.H. McKeever, F. Pipers.** Effect of Enalapril on pulmonary artery pressure and exercise performance in horses. *American Journal of Physiology*. (In Preparation), 2005.
9. **McKeever, K., A. Szucsik, V. Balaskonis, K. Malinowski.** Effects of training and detraining on

- plasma tCO₂ concentration in Standardbreds? *Equine and Comparative Exercise Physiol.* (In Prep).
10. **Betros, C.L., K.H. McKeever, M.E. Gordon, and H.C. Manso.** Effects of aging and training on resting and intrinsic heart rate in horses. *Am. J. Physiology*, (In Preparation).
 11. **Balaskonis, V, A. Szucsik, and K.H. McKeever** Effect of dietary supplements on plasma tCO₂ concentration in Standardbred horses. *Journal of Equine and Comparative Exercise Physiology* (In Preparation).
 12. **Manso, H.C., K.H. McKeever, G. Wu, and M. Watford.** Changes in physiological and biochemical parameters during the post-partum transitional period in Standardbred mares. *Journal of Animal Sci.*, (In Preparation).
 13. **Manso, H.C., K.H. McKeever G. Wu, M. Watford.** Changes, body composition, glucose transporter 4, expression, glutamine synthetase abundance, and free amino acid pools with growth and development in foals. *Journal of Animal Science.*, (In Preparation).
 14. **Gordon, M.E., C.F. Kearns, K.H. McKeever** Endocrine and adipocytokine factors affecting appetite and energy homeostasis in horses. *Equine and Comparative Exercise Physiology.* (In Preparation).
 15. **Williams, C.A., J.M. Streltsova, N.R. Liburt, K.H. McKeever, S. Carlucci.** Black tea and orange peel extract affects oxidative stress and antioxidant status in intensely exercising horses. *Journal of Nutrition* (In prep).
 16. **Williams, C.A., N. Liburt, K. McKeever, S. Carlucci.** Ginger and cranberry extract supplementation to horses undergoing an intense bout of exercise affects oxidative stress and antioxidant status. *J Nutr.* (In prep).
 17. **McKeever, K.H. and K.W. Hinchcliff.** Hemodynamics associated with the on and off transients to exercise in the horse. *Equine and Comparative Exercise Physiol* (In Preparation)..
 18. **McKeever, K.H., K.W. Hinchcliff and R.A. Sams.** Cocaine: Time to peak effect on resting cardiovascular function. *J Vet. Pharmacology and Therapeutics.* (In Preparation).
 19. **Hinchcliff, K.H., K.W. McKeever, B. Smith.** Variations in lactate during a graded maximal exercise test due to sampling location. *Equine and Comparative Exercise Physiol*(In Preparation).

Abstracts:

1. **Manso, H.C., C.L. Betros, M.E. Gordon, H. Costa, M. Watford, K.H. McKeever.** Changes in plasma and muscle glutamine concentration in horses with aging and exercise training. *The Physiologist* 47:322, 2004.
2. **Gordon, M.E., C.L. Betros, H.C. Manso Filho, and K.H. McKeever.** Plasma leptin, ghrelin, and adiponectin concentrations in fit vs. unfit Standardbred mares. *Medicine and Science in Sport and Exercise* 36:S303, 2004.
3. **McKeever, K.H., M.E. Gordon, C.L. Betros, and H.C. Manso Filho** Exercise-Induced alterations in plasma insulin, cortisol, leptin, and ghrelin concentrations in horses. *Medicine and Science in Sport and Exercise* 36:S139-S140, 2004.
4. **Manso Filho, H.C., R. Causey, R.A. Lehnhard, and K.H. McKeever.** Maternal and fetal heart rates during exercise in horses. *Medicine and Science in Sport and Exercise* 36:S211-S212, 2004.
5. **Kearns, C.F., T. Abe 2, H.C. Manso, Y. Sato, M. Sleeper, K.H. McKeever.** Increases in skeletal muscle size following moderate vascular occlusion in Standardbred horses. *Medicine and Science in Sport and Exercise* 36:S343, 2004.
6. **Manso Filho, H.C., M. Watford, and K.H. McKeever.** Body composition in transition mares and suckling foals. *2nd European Workshop on Equine Nutrition, 2003.*
7. **McKeever, K., R. Norton, C. Kearns, C. Betros, M. Gordon, H. Manso.** Effect of Ma Huang on

- Cardiovascular Function and Exercise Performance in Horses. *Medicine and Science in Sport and Exercise*. 35:S267, 2003.
8. **McKeever, K.H., A.M. Szucsik, V.B. Balaskonis, C.L. Betros, C.F. Kearns, K. Malinowski.** Effect of management practices and training on plasma tCO₂ concentration in horses *J. Animal Science* 80 (Suppl 1): 172, 2002.
 9. **Malinowski, K., E. Shock, V. Roegner, P. Rochelle, C. Kearns, P. Guirnalda, K. McKeever.** Age and exercise training alter plasma β -endorphin, cortisol, and immune parameters in horses. *J. Animal Sci.* 80 (Suppl.1): 156, 2002.
 10. **Malinowski, K., C.L. Betros, L. Flora, K.H. McKeever.** Effect of training on age-related changes in plasma insulin and glucose in horses. 6th International Conference on Equine Exercise Physiology. Lexington, KY, 2002.
 11. **McKeever, K., R. Scali, S. Geiser, C. Kearns.** Plasma aldosterone concentration and renal sodium excretion are altered during the first days of training in horses. 6th International. Conf. Equine Exercise Physiol., Sept., 2002.
 12. **Kearns, C.F., K.H. McKeever, H. John-Alder, and T. Abe.** Body composition and other predictors of maximal aerobic power in the horse. 6th International Conference on Equine Exercise Physiology. Lexington, KY,, 2002.
 13. **Betros, C.L., K.H. McKeever, C.F. Kearns, K. Malinowski.** Effects of aging and training on maximal heart rate and VO₂max in horses. 6th International Conference on Equine Exercise Physiology. Lexington, KY, 2002.
 14. **Beekley, M.D., K. McKeever, J. M. Ideus, J. B. Brown, C. Kearns.** Chronic clenbuterol administration alters myosin heavy chain composition in Standardbred mares. *Medicine and Science in Sport and Exercise* 33:S:339, 2001.
 15. **McKeever, K. H. and C.F. Kearns.** Aging-induced alterations in plasma volume in horses. *Medicine and Science in Sport and Exercise* 33:S:257, 2001.
 16. **Struck, M.B., K.H. McKeever, C.F. Kearns, K. Malinowski** Therapeutic levels of clenbuterol act as a repartitioning agent in the Standardbred mare. *Medicine and Science in Sport and Exercise*. 33:S338, 2001.
 17. **Kearns, C.F. and K. H. McKeever.** Long-term clenbuterol administration decreases aerobic performance in Standardbred mares. *Medicine and Science in Sport and Exercise* 33:S:338, 2001.
 18. **Plant D.R., C.F. Kearns, K.H. McKeever, G.S. Lynch.** Short-term clenbuterol treatment does not affect Ca²⁺-sensitivity of fast skeletal muscle fibers from horses. *Med. Sci. Sport Exerc.* 33:S:172, 2001.
 19. **Lehnhard, R.A., K.H. McKeever, C. F. Kearns, J. M. Ideus, J. B. Brown, M.D. Beekley.** Myosin heavy chain is different in old versus young Standardbred mares. *Medicine and Science in Sport and Exercise* 32:S13, 2001.
 20. **Sleeper M, K. McKeever C. Kearns.** Chronic clenbuterol administration negatively alters cardiac function in the Standardbred mare. *Journal of the American College of Veterinary Internal Medicine* 15:321, 2001.
 21. **McKeever, K.H., S. Geiser and C.F. Kearns.** Role of the renin-angiotensin aldosterone cascade in the pulmonary artery pressure response to exercise in horses. *The Physiologist* 43:356, 2000.
 22. **Kearns, C., K. McKeever, K. Kumagai, T. Abe,** Using body composition as a predictive measure of elite Standardbred performance, 5th Conf. Researchers in Equine Exercise Physiology, New Brunswick, NJ, 5:3, Sept, 2000.
 23. **McKeever, K.H., T.L. Eaton, S. Geiser, and C.F. Kearns** Thermoregulation in old and young horses during exercise. *Medicine and Science in Sport and Exercise* 32:S156, 2000.
 24. **Kearns, C.F., K.. McKeever, K. Kumagai, T. Abe.** Using body composition as a predictive measure

- of elite Standardbred performance. *Medicine and Science in Sport and Exercise* 32:S357, 2000.
25. **Eaton, T.L. K.H. McKeever, S. Geiser, and C.F. Kearns** Thermoregulation in old and young mares during exercise. 4th Conference on Research in Equine Exercise Physiology, Pomona, CA, 1999.
 26. **McKeever, K.H., L.C. Keil, H. Sandler.** Extracardiac sensing mechanisms associated with induced fluid shifts. The 4th International Head-out Water Immersion Symposium, Graz, Austria, Sept., 1999.
 27. **McKeever, K.H., R. Scali, S. Geiser, J.M. Agans, P.D. Guiralda, C.F. Kearns, A.N. Dimock.** Training-induced alterations in renal function in horses. *Medicine and Science in Sport and Exercise.* 31:S323, 1999.
 28. **McKeever, K.H., J.M. Agans, S. Geiser, R. Scali, P.D. Guiralda, C.F. Kearns, P.J. Lorimer.** Recombinant human erythropoietin administration alters red cell volume and aerobic capacity in standardbred horses, 3rd Conf. on Research in Equine Exercise Physiology, Pullman, WA, 1998.
 29. **McKeever, K.H. and L.A. Antas.** Endothelin response to exercise in horses. *Medicine and Science in Sport and Exercise* 30:S105, June 1998.
 30. **Smith, T., W. Beam, S. Wickler, K.H. McKeever.** Altitude not exercise increases plasma erythropoietin in the horse *Federation of American Societies of Experimental Biology Journal* 12:A724, 1998.
 31. **McKeever, K.H. and K. Malinowski.** Endocrine response to exercise in young and old female horses. 5th International Conference on Equine Exercise Physiology, Utsunomiya, Japan, 1998.
 32. **Kohn, C.W., K.W. Hinchcliff, K.H. McKeever.** Effects of ambient temperature and humidity on performance in exercising horses. 5th International Conference on Equine Exercise Physiology, Utsunomiya, Japan, 1998.
 33. **Hinchcliff, K.W. and K.H. McKeever.** Furosemide and weight carriage alter the acid:base responses of horses to brief intense exertion. 5th International Conference on Equine Exercise Physiology, Utsunomiya, Japan, 1998.
 34. **McKeever, K.H., K. Malinowski, R.A. Christensen, H.D. Hafs.** Chronic somatotropin (eST) administration does not affect aerobic capacity or indices of exercise performance in geriatric mares. *Journal Animal Science* 75 (Suppl. 1):217.
 35. **Hinchcliff, K.W. and K.H. McKeever.** Fluid replenishment abolishes the effect of furosemide in running horses. Furosemide. 1997 American College of Veterinary Internal Medicine National Mtg.
 36. **McKeever, K.H. and K. Malinowski.** Exercise capacity in young and geriatric female horses. Equine Exercise Physiology Research Meeting, Columbus, OH, 1996.
 37. **McKeever, K.H.** Erythropoietin: a new form of blood doping in horses. *Handbook and Abstracts of the 11th International Conference of Racing Analysts and Veterinarians*, Brisbane, Australia, 1996.
 38. **Hinchcliff, K.W., K.H. McKeever, W. Muir, R. Sams.** Furosemide reduces accumulated oxygen deficit and rate of lactate production in horses during brief intense exertion. *Handbook and Abstracts of the 11th International Conference of Racing Analysts and Veterinarians*, Brisbane, Australia, 1996.
 39. **Farris, J.W. , K.W. Hinchcliff, K.H. McKeever, and D.R. Lamb.** Treadmill endurance of Standardbred horses with tryptophan or glucose. *Med. Sci. Sport Exer.* 27: S48, 1996.
 40. **McKeever, K.H.** Workshop on methods for the measurement of fluid and electrolyte alterations during exercise in horses. 4th International Conference on Equine Exercise Physiology, 1994.
 41. **McKeever, K., K. Hinchcliff, J. Farris, S. Alway, L. Schmall, R. Heck, J. Lombardo.** Arterial and intracardiac pressure during progressive resistance exercise in ponies. *Medicine and Science in Sport and Exercise.* 26:S5, 1994.
 42. **McKeever, K. and K. Hinchcliff,** Neuroendocrine control of blood volume, blood pressure, and cardiovascular function in horses. 4th International Conference on Equine Exercise Physiology, Brisbane, Australia, 1994.
 43. **Farris, J.W., K.W. Hinchcliff, K.H. McKeever, D. Lamb.** Endurance Performance is enhanced by

- glucose supplementation during submaximal exercise. 4th International Conference on Equine Exercise Physiology (ICEEP), Brisbane, Australia, 1994.
44. **Hinchcliff, K.W. and K.H. McKeever.** Furosemide. 4th International Conference on Equine Exercise Physiology (ICEEP), Brisbane, Australia, 1994.
 45. **McKeever, K.H., B.A. McNally, K.M. Kirby, J. Farris K. Hinchcliff.** Effect of erythropoietin on plasma and red cell volume, VO_{2MAX} , and hemodynamics in exercising horses. *Medicine and Science in Sports Exercise* 25:S25, 1993.
 46. **Rivas L.J., K.W. Hinchcliff, and K.H. McKeever.** Furosemide-induced reduction in right atrial pressure is related to blood volume depletion. 74th Conference of Research Workers in Animal Disease, 1993.
 47. **Hinchcliff, K.W., K.H. McKeever, W. Muir, R. Sams.** Phenylbutazone attenuates the diuretic effects of furosemide in horses. 74th Conference of Research Workers in Animal Disease, 1993.
 48. **Hinchcliff, K.W., K.H. McKeever, W.W. Muir, R.A. Sams.** Effect of oral sodium loading on acid:base status and athletic capacity of horses. *Med. Sci. Sport Exerc.* 25:S25, 1993.
 49. **Fenger, C.K., K.W. Hinchcliff, K.H. McKeever, C.W. Kohn, and W.W. Muir.** Arteriovenous differences in electrolyte, albumin, respiratory gases, and hemoglobin saturation with maximal exercise in horses. 73th Conference of Research Workers in Animal Disease, 1992
 50. **McKeever, K.H., K.W. Hinchcliff, S. Reed, J. Robertson.** Fluid and electrolyte shifts during incremental exercise in horses. 13th Equine Nutrition & Physiological Society Symp., Gainesville, FL, 1992.
 51. **Hinchcliff, K.W., K.H. McKeever, R.A. Sams.** Effect of oral Na^+ loading on acid:base responses of horses to intense exertion. 13th Equine Nutrition & Physiological Society Symp., Gainesville, FL, 1992.
 52. **Fenger, C. K., K.W. Hinchcliff, K.H. McKeever, C. W. Kohn.** Changes in electrolytes, lactate, and hemodynamics with exercise in horses. 1992 American College of Veterinary Internal Medicine National Meeting (*C. Fenger was McKeever's graduate student and received the 1st place prize in graduate student competition for this presentation*)
 53. **Hinchcliff, K.W., K.H. McKeever, W. Muir, R.A. Sams.** Effect of oral Na^+ bicarbonate on indices of athletic performance in horses. 72th Conf. Research Workers in Animal Disease, p. 30, 1991.
 54. **Hardy, J., L. Bramlage, R. Schneider, S. Weisbrode, K. McKeever.** Effects of exercise on articular cartilage repair in the horse. American College of Veterinary Surgeons Annual Mtg, 1991.
 55. **McKeever, K.H., K.W. Hinchcliff, J.L. Cooley.** Acute volume load during exercise in horses: atrial natriuretic peptide, vasopressin, and hemodynamics. *Med. Sci. Sport Exerc.* 23:S104, 1991.
 56. **Gerken, D.F., R.A. Sams, K.H. McKeever, K.W. Hinchcliff, S. Ashcraft.** Urinary pH effects on the renal clearance of lidocain and phenylbutazone in exercising horses. *Toxicologist* 11:96, 1991.
 57. **Cooley, J.L., K.H. McKeever, K.W. Hinchcliff, D.R. Lamb, and W.W. Muir.** Furosemide: hormonal alterations in exercising horses. 71st Conf. of Research Workers in Animal Disease, 1990.
 58. **McKeever, K.H., K.W. Hinchcliff, L.M. Schmall, W. Muir.** Renal function and atrial natriuretic peptide in horses during submaximal exercise. *Medicine and Science in Sports and Exercise*, 22:S25, 1990.
 59. **Hinchcliff, K.W., K.H. McKeever, L.M. Schmall, C.W. Kohn, and W.W. Muir.** Central and renal hemodynamic responses to prolonged submaximal exertion in horses. 70th Conference of Research Workers in Animal Disease, 1989
 60. **McKeever, K.H., K.W. Hinchcliff, L.M. Schmall, D. Lamb and W. Muir.** Atrial natriuretic peptide during exercise in horses. 3rd International Conference on Equine Exercise Physiology 1989.
 61. **McKeever, K.H., K.W. Hinchcliff, G. Kociba, S.M. Reed, W. Muir.** Coagulation and fibrinolysis in horses during exercise. *Medicine and Science in Sport and Exercise* 21: S105, 1989.

62. **Hinchcliff, K.W., K.H. McKeever, G. Kociba, S.M. Reed, W.W. Muir.** Exercise-induced changes in coagulation and fibrinolysis in horses. 69th Conf. of Research Workers in Animal Disease, 1988.
63. **McKeever, K.H., S.H. Jarrett, W.A. Schurg, and V.A. Convertino.** Exercise training-induced hypervolemia in the horse. *Association for Equine Sports Medicine Quarterly* 2:13, 1987.
64. **McKeever, K., S. Jarrett, W. Schurg, V. Convertino.** Resting concentrations of the plasma free amino acids following chronic submaximal exercise training in horses. *Assn for Equine Sports Med. Quarterly* 1:72, 1986.
65. **Jarrett, S.H., K.H. McKeever, and W.A. Schurg.** Nitrogenous constituents in the blood of foals weaned at varying ages. *Proc. Annual Meeting American Society of Animal Science*, Athens, GA, 1985.
66. **McKeever, K., W. Schurg, S. Jarrett, V. Convertino.** Plasma volume expansion and renal control mechanisms following chronic submaximal exercise training. *Proc. 9th Equine Nutrition & Physiological Society Symposium*, 1985.
67. **McKeever, K. and W. Schurg.** Exercise training-induced hypervolemia in greyhound dogs: the role of water intake, urine output, GFR, osmolar clearance, and free water clearance. 1984 American Society of Animal Science Meetings.

Other Publications:

1. **McKeever, K.H., L.C. Keil, and H. Sandler.** Intrapericardial denervation: responses to water immersion in rhesus monkeys. NASA - Technical Memorandum: 111729, 1995.
2. **McKeever, K.H.** NJ Department of Agriculture Equine Horse Health Newsletter. Age alters cooling ability in horses during exercise. page 4, 2000.
3. **McKeever, K.H.** *Erythropoietin* NJ Department of Agriculture Equine Horse Health Newsletter. p3, 1998.
4. **McKeever, K.** Equine Exercise Physiology at Ohio State University. *Ohio Thoroughbred Magazine* 17: 62-63, 1987.
5. **McKeever, K.** **Using Your Equine Heart Rate Meter.** *Dressage and Combined Training Magazine.* 25:32-34, 1989.
6. **McKeever, K.H.** Response to Letter to the Editor. *Medicine and Science in Sports and Exercise* 19:524-525, 1987.

Patent Application

RU-111 Use of orange peel extract to optimize the recovery from exercise, McKeever with Franke, Rosen, Streltsova, Liburt, and Welgen, 2005.

Presentations at National and International Professional Meetings:

1. **Invited Panelist** "Evolution of the racehorse: The Barbaro Story" Darwin Lecture Series at *The Franklin Institute Science Museum*, Philadelphia, November 2006.
2. **Invited Lecture:** "The horse as an animal model for conducting studies of the effects of nutraceuticals on performance," *Research and Development Associates for Military Food and Packaging Systems*, Lexington, Kentucky, November, 2005.
3. **Presenter** "Effects of orange peel and tea extract on markers of performance and cytokine markers of inflammation following acute exercise" *19th Equine Science Society Symposium*, Tucson, AZ, 2005.
4. **Invited Panelist** "The Hunt for the Red October: Finding the Undetectables-Presentation of EPO research" *Joint Mtg of Harness Tracks of America, Thoroughbred Racing Association, and Racetracks of Canada*, Hollywood, FL, Mar, 2003.

5. **Invited Panelist:** "Designer Drugs" *Horses 2003 Educational Conference*, Rutgers University, March, 2003.
6. **Invited Panelist:** "Integrity of Equestrian Sport" *Horses 2003-Horse Industry Summit*, Rutgers University, Mar., 2003.
7. **Panel Moderator:** Equine Injuries, Lameness & Treatment Options (panel) *Horses 2003 Educational Conference*, Rutgers University, March, 2003.
8. **Invited Paper** "Does it Work? Testing the efficacy of feed supplements" *KER Equine Nutrition Conference "Nutrition of the Performance Horse-An International Perspective,"* Lexington KY, 2002.
9. **Invited Paper** "Can feed cause a positive blood test in racehorses? Some recent information on the effect of dietary supplements on plasma tCO₂ concentration in horses." *KER Equine Nutrition Conference "Nutrition of the Performance Horse-An International Perspective."* Lexington KY, 2002.
10. **Presenter** "Plasma aldosterone concentration and renal sodium excretion are altered during the first days of training in horses" 6th International Conf. Equine Exercise Physiology, Lexington, KY, 2002.
11. **Presenter** "Workshop on Exercise-Induced Pulmonary Hemorrhage" 6th International Conference on Equine Exercise Physiology, Lexington, KY, 2002.
12. **Presenter** "Workshop on Detection of the Administration of Alkalinizing Agents" 6th International Conference on Equine Exercise Physiology, Lexington, KY, 2002.
13. **Presenter** "Effect of management practices and training on plasma tCO₂ concentration in horses" American Society of Animal Sci./Canadian Society of Animal Sci. International Mtg, Quebec, 2002.
14. **Presenter** "Aging-induced alterations in plasma volume in horses" Am. College of Sports Med. National Mtg, Baltimore, MD, May, 2001.
15. **Presenter** "Role of the renin-angiotensin aldosterone cascade in the pulmonary artery pressure response to exercise in horses" Am. Physiol. Society - Comparative Physiology of Exercise Symp., Portland, ME, 2000.
16. **Organizer and Presenter:** Wet lab demonstration of cardiopulmonary measurements in the exercising horse. 20th Association of Equine Sports Medicine International Meeting, New Brunswick, NJ, Sept., 2000.
17. **Organizer and Presenter:** Wet lab demonstration of Evans Blue Dye and Radioimmunoassay extraction techniques. 5th Conf. of Researchers in Equine Exercise Physiology, New Brunswick, 2000.
18. **Presenter** "Thermoregulation in old and young horses during exercise". American College of Sports Medicine National Meeting, Indianapolis, IN, May, 2000.
19. **Invited Panelist:** "Putting Science into Practice at the Track" 26th Annual Symposium on Racing, University of Arizona Race Track Industry Program, Tucson, AZ, December 1999.
20. **Presenter** Extracardiac sensing mechanisms associated with induced fluid shifts. 4th International Head-out Water Immersion Symposium, Institute for Adaptive and Spaceflight Physiology, Karl-Franzens-Univ., Graz, Austria, 9/1999.
21. **Presenter** Training-induced alterations in renal function in horses. American College of Sports Medicine National Meeting, Seattle, WA, May, 1999.
22. **Presenter** Recombinant human erythropoietin administration alters red cell volume and aerobic capacity in Standardbred horses, 3rd Conf. on Research in Equine Exercise Physiology, Pullman, 1998.
23. **Presenter** Endocrine response to exercise in young and old female horses. 5th International Conference on Equine Exercise Physiology, Utsunomiya, Japan, September, 1998.
24. **Presenter** Endothelin response to exercise in horses. 2nd North American Equine Exercise Physiology Research Meeting, East Lansing Michigan, November, 1997.
25. **Presenter** "Chronic somatotropin (eST) administration does not affect aerobic capacity or indices of exercise performance in geriatric mares" American Society of Animal Science Mtg, Nashville, 1997
26. **Presenter** "Exercise capacity in young and geriatric female horses" 15th Equine Nutrition and Physiological Society Symposium, Fort Worth, Texas, 1997.
27. **Presenter** "Exercise capacity in young and geriatric female horses" North American Equine Exercise Physiology Research Meeting, Columbus, Ohio, November, 1996.

28. **Presenter:** "Workshop on measurement of maximal aerobic capacity in horses" North American Equine Exercise Physiology Research Meeting, Columbus, Ohio, November, 1996.
29. **Invited Keynote Address** "Erythropoietin: a new form of blood doping in horses" 11th International Conference of Racing Analysts and Veterinarians, Gold Coast, Australia, 1996.
30. **Invited Keynote Integrative Paper** "Neuroendocrine control of blood volume, blood pressure, and cardiovascular function in horses. 4th Internat. Conf. Equine Exer. Physiol., Brisbane, Australia, 1994.
31. **Presenter:** "Arterial and intracardiac pressure during progressive resistance exercise in ponies" American College of Sports Medicine Meeting, Indianapolis, Indiana, 1994.
32. **Presenter:** Effect of erythropoietin on plasma and red cell volume, VO_{2MAX} , and hemodynamics in exercising horses. American College of Sports Medicine Meeting, Seattle, WA, 1993.
33. **Presenter:** Fluid and electrolyte shifts during incremental exercise in horses. 13th Equine Nutrition and Physiology Society Symposium, Gainesville, Florida.
34. **Presenter:** "Acute volume load during exercise in horses: atrial natriuretic peptide, vasopressin, and hemodynamics." 1991 American College of Sports Medicine Meeting, Orlando, Fla.
35. **Presenter:** "Renal function and atrial natriuretic peptide in horses during submaximal exercise." 1990 ACSM National Meeting, Salt Lake City, Utah.
36. **Presenter:** "Atrial natriuretic peptide during exercise in horses." 1990 3rd International Conference on Equine Exercise Physiology. Uppsala, Sweden.
37. **Presenter:** "Coagulation and fibrinolysis in horses during exercise." 1989 American College of Sports Medicine National Meeting, Baltimore, Maryland.
38. **Presenter:** "Plasma volume expansion and renal control mechanisms following chronic submaximal exercise training." 1985 9th Equine Nutrition & Physiol. Society Symp., E. Lansing, Michigan.
39. **Presenter:** "Exercise training-induced hypervolemia in greyhound dogs: role of water intake, urine output, GFR, osmolar, and free water clearance." 1984 West. Sect. Am Soc An Sci. Mtg.

Invited Lectures and Presentations:

2006. United States Army Natick Soldier System Center, Natick, MA *"Effects of cranberry on markers of inflammation following acute exercise in horses, an update and plans for future research"*
2006. Tufts Cummings School of Veterinary Medicine, North Grafton, MA, *"EPO elicits and ergogenic effect in equine"*
2006. Department of Animal Science, Cook College, Rutgers University. *"Erythropoietin elicits an ergogenic effect in equine"*
2006. Department of Veterinary Physiology, College of Veterinary Medicine, Oklahoma State University. *"Nutraceuticals and their effects on performance and inflammation"*
2005. Department of Animal Sciences, University of Kentucky. *"Physiology of Performance, Past, Present, and Future Research,"*
2005. Department of Animal Sciences, Texas A and M University. *"Nutraceuticals and their effects on Performance and Inflammation"*
2004. Sigma Xi Chapter at the US Army Natick Soldier System Center, Natick, MA, *"The Use of Equine Exercise Stress in Evaluating Nutraceuticals."*
2003. United States Army Natick Soldier System Center, Natick, MA *"Joint Seminar on the Strategy for Selecting Nutraceuticals for Improving Physical & Cognitive Performance"*
2001. Kansas State University College of Veterinary Medicine Department of Anatomy and Physiology seminar, *"Combined effects of clenbuterol and training on the physiology of the horse."*
2000. Cargill Feeds, Inc, *"Effect of age on thermoregulation in horses"*
1999. Penn-Jersey Extension Partnership Barn Managers Seminar *"Drugs and Performance"*

- 1999 Merial Pharmaceuticals, Ltd. "Effects of Enalapril on Performance"
- 1996 Purina Horse Mgt. Seminar Series-Centenary College "Fluid and Electrolytes for the Exercising Horse."
- 1996 Cumberland County 4-H "Equine Exercise Physiology Research, Teaching, and Outreach at Rutgers"
- 1996 NJ Equine Advisory Board "Aging and aerobic capacity in horses"
- 1996 NJ Agricultural Experiment Station and the NJ Horse Council "Aerobic Capacity Testing using the Equine Treadmill".
- 1995 New Jersey Agricultural Experimentation Station and the NJ Horse Council "Exercise Physiology and Conditioning " and "Demonstration of Practical Methods for Assessing Fitness".
- 1994 Department of Animal Science, Cook College, Rutgers University "Neuroendocrine control of blood volume, blood pressure, and cardiovascular function in horses.
- 1994 University of Pennsylvania-New Bolton Center "Neuroendocrine control, erythropoietin and cardiovascular function.
- 1994 Merck Research Labs, West Point, PA "Neuroendocrine Control of Cardiovascular Function".
- 1994 Circulation Technology Division, OSU College of Medicine Senior Seminar Neuroendocrine alterations with acute volume load during exercise.
- 1993 Cal Poly Pomona Equine Exercise Physiology Class and the Southern California Assn. of Racetrack Veterinarians. Effects of training and rhuEPO on blood volume.
- 1993 OSU Equine Practitioner's Short Course "Misuse of Erythropoietin in Racehorses"
- 1990 Ohio State University Practitioner's Short Course "Performance Evaluation".
- 1990 Expert Panelist-Workshop on Performance Testing Methods at the 3rd Internat. Conf. on Equine Exercise Physiology, Uppsala, Sweden.
- 1989 Seminar at OSU Equine Exercise Lab for Otterbein Univ. Equine Science Class.
- 1989 OSU Pre-Veterinary Club. Lecture on Equine Exercise Physiology.
- 1989 US Combined Training Assn Area VIII Annual Mtg "Using Heart Rate Monitoring for evaluation Performance"
- 1989 OSU Equine Practitioner's Short Course "History of Equine Exercise Physiology"
- 1988 Interview for article in Practical Horseman Magazine.
- 1988 Seminar for Bob Evans Farms 4-H Field Day "Performance Evaluation"
- 1988 OSU Horseman's Short Course "Heart Rate & Lactate in the Evaluation of Performance"

Consulting and Outside Work:

Expert Witness - Maryland Attorney General/Racing Commission - *Provided key testimony that led to a victory in this test case for the alkalizing agent detection program for Maryland both at the trial level, at the appellate level, and the MD Supreme Court.*

Expert Witness - New Jersey Attorney General/Racing Commission - *Provided key testimony that led to a victory in this test case for the alkalizing agent detection program both at the trial court level and at the NJ Supreme Court. Approximately 50 other cases held behind this case.*

Expert Witness - Delaware Standardbred Owners Association - *Provided key information and analysis to help find the reason for a major series of milkshaking inadvertent positives.*

Expert Witness - Trader vs. the Delaware Racing Commission - *Provided information and analysis that suggested that the positive test for milkshaking was due to inadvertent application of legal treatments affecting bicarbonate status. The testimony was key to the reversal of penalties in this case.*

Expert Consultant - Office of the Camden County Prosecutor. *Provided key information for regarding a guanabenz case.*

Expert Consultant - Ontario Racing Commission - *Provided key information for the formulation of new drug testing protocols and procedures.*

Expert Consultant - Indiana Horse Racing Commission - *Provided key information for the formulation of new drug testing protocols and procedures.*

Expert Consultant - Kentucky Horse Racing Authority - *Provided key information for the formulation of new drug testing protocols and procedures.*

Expert Witness - the American Horse Shows Association - *Provided key information for two drug cases.*

Research Consultant - Various projects including: Miles/Bayer Inc. (1995-1995); Merck (1989-1993).

Research Consultant - Consulted with Ken Kober from Columbus Instruments, Inc. to develop the prototype model of the Oxymax-XL large animal calorimeter, the first commercially produced system for the measurement of oxygen uptake and carbon dioxide production in exercising horses.

Technical Support: Provided technical support and information to Drs. Joe Pagan and Steve Jackson, Kentucky Equine Research, Inc. for development of an exercise testing lab at their facility in Lexington.

Technical Support: Provided technical support and research information to Dr. Luka Krusic, Equine Clinician and Exercise Physiologist, Munich, Germany.

Technical Support: Provided technical support and information to Dr. John Foreman for the development of the Equine Exercise Physiology Lab. at the University of Illinois, College of Veterinary Medicine.

Technical Support: Provided technical support and information to Dr. Larry Soma for the development of the Equine Exercise Physiology Lab at the University of Pennsylvania., College of Veterinary Medicine.

Technical Support: Provided technical support and information to Dr. Frank Andrews for development of an Equine Exercise Physiology Lab at the University of Tennessee, College of Veterinary Medicine.

Reviewed/edited manuscript for Dr. Anton Usaj, Faculty for Sport, Univ. of Ljubljani, Slovenia.

Technical Support: Provided technical information and support to David Lambert, DVM, of Prestonwood Farm, Inc. for the development of an equine exercise testing laboratory.

Technical Support: for Viking Meadows Farms, Carmel Indiana, 1989.

Technical Support: Provided technical support to Dr. David Keogh of Yellow Springs Instruments, Inc. for the development of their portable lactate analyzer.

Consultant: Tested a heart rate monitor and wrote user's manual for Polar Electro, Inc.. Ohio State University received 2 heart rate meters.

OSU Athletic Testing - analysis of blood samples from the OSU Swimming Team for blood lactate concentrations.

Undergraduate and Graduate Teaching

Rutgers, 11:067:142, Fall, 2003, 2004, 2005. Introduction to Animal Science. Coordinated course and lectured as part of this team taught course while Dr. Jesse was on sabbatical leave in 2003; lectures in 2004, 2005, and 2006.

Rutgers, 11:067:175, Spring, 1998, 1 units. Animal Handling, Fitting, and Exhibition.

Rutgers, 11:067:207, Spring, 1998, 2 units. Horse Practicum

Rutgers, 11:067:401, Spring, 1996, 1998, 2000, 2002, 2004, 2006, 3 units. Topics in Equine Science. Equine Sports Science. Offered every other year as part of the Equine Science minor.

Rutgers, 11:067:402 Spring, Ongoing. 3 units. Equine Exercise Physiology. Developed and taught an upper division/graduate course in the physiology of the equine athlete.

Rutgers, 16:067:508 Spring, Ongoing. 3 units. 10-15 Students. Graduate Course in Equine Exercise Physiology. Developed and taught this upper graduate course in the physiology of the equine athlete. The Department of Exercise and Sport Sciences has lost faculty and cannot offer enough electives for their students to graduate. Thus, for the past few years this class has been full and has served as one of the electives for their students.

Rutgers, 11:067:493, Fall Semester, Research in Animal Science. 8 to 20 students serves as an experiential techniques class for Animal Science majors as well as non-majors. Students learn about horse behavior and how to safely handle horses as well as the techniques involve in conducting exercise physiology research. The goal is to have each student learn the many techniques used in setting up and conducting a high speed treadmill test. Student learn about the scientific method, they learn sterile technique and how to place catheters, they learn each of the jobs necessary to conduct a test, and they learn to collect blood, urine, and other samples and to perform various assay. Many students will sign up for multiple semesters.

Rutgers, 11:067:494, Spring Semester, Research in Animal Science. 8 to 20 students. This class is the second semester of an experiential techniques class for Animal Science majors as well as non-majors as described above. Class enrollment ranges from 8 to 15 students.

Rutgers, 11:554:497 Fall , Spring, Ongoing. Honors Tutorial. Mentoring of Cook Undergraduate General Honors Program students independent research projects.

Rutgers, 11:015:497 Fall, Spring, Ongoing. Biology Honors. Mentoring of Biological Science Undergraduate Honors Program students independent research projects.

Rutgers, 16:076:502, Spring, 1998, 1999, 2000. Mammalian Physiology. Provided lectures on renal function.

Rutgers, 16:067:693/694, 1997-1999, Fall 2006. Seminar in Animal Science. Coordinator of the graduate seminar for the Department of Animal Science.

Rutgers, 16:067:701, Fall, Spring, Ongoing. Research in Animal Science. Mentoring of graduate student research..

University of Delaware, Fall, 2002, 2003, Equine Science, Lectures on Equine Exercise Physiology.

Delaware Valley College, Winter, 1998, Anatomy and Physiology, Lectures on cardiopulmonary function. Part of Mid-Atlantic Consortium of the Kellogg Initiative.

University of Pennsylvania, VCSN648, Winter 1996-2007. 20-30 Students. Equine Exercise Physiology class. Provided lectures to Jr/Sr veterinary students at the New Bolton Center.

Ohio State University VCS 696, Spring, 1991, 1992, 1993, 1994, Equine Exercise Physiology Elective. Co-developed and co-taught this class to 20 Soph/Jr Vet. students and Graduate students.

OSU HPER 714, Spring, 1993, 1994, Advanced Exercise Physiology, Responses and Adaptation to Exercise. Team taught with Drs. Lamb, Alway, and Kirby. 10 graduate students.

OSU HPER 801, Winter, 1994, Exercise Physiology, Metabolism, Temperature, Water & Electrolyte Balance. Taught with Dr. W.M. Sherman. 12 graduate students.

OSU HPER 886, Winter, 1994, Exercise Physiology Colloquium, Lecture on "Intercardiac pressure during resistance exercise" 25-30 graduate level students.

OSU VPP 411, Winter, 1993, 1994, Veterinary Physiology; Lectures on renal function and endocrine (aldosterone, vasopressin, atrial natriuretic peptide, and plasma renin activity) control. 30-45 students.

OSU VM 602, Winter, 1991, 1992, 1993, 1994, Urinary Physiology Team: Lectures on renal physiology ~125 veterianry students.

OSU VM 600, Fall, 1992, 1993, Cardiovascular System. Taught laboratories designed to demonstrate cardiovascular control. 10 contact hrs, 125 students.

OSU HPER 886, Fall, 1991, Exercise Physiology Colloquium, Lecture on "Acute volume load during exercise in horses" 25-30 graduate level students.

OSU VCS 710.05 and OSU VCS 710.06, F, Wtr, Spr, Su 1988-1991, Clinical instruction and experience at Equine Exercise Physiology Lab.

OSU HPER 886, Fall, 1990 Exercise Physiology Colloquium: Lecture on "Renal Function During Exercise in Horses", 25-30 graduate level students.

OSU VCS 731, Spring, 1989 and 1990, Equine Medicine Elective- Lecture on Performance Evaluation in 1989. In 1990 developed and coordinated class "Topics in Equine Sports Medicine".

OSU HPER 886, Spring, 1989, Exercise Physiology Colloquium, Lecture and lab demonstration at Equine Exercise Physiology Laboratory. 25-30 graduate level students.

OSU HPER 886, Winter, 1988, Exercise Physiology Colloquium, Lecture on "Exercise-induced hypervolemia in horses" 25-30 graduate level students.

OSU Internal Medicine 850.02, Fall, 1987 Cardiology Resident's Conference, College of Medicine. Cardiovascular, renal, and endocrine responses to water immersion. 25 students.

OSU Autotutorial: Review of Cardiovascular Physiology. McKeever, K., J. Bonagura, and W. Muir.

University of Arizona, AS 470, Spring 1982, 1983, 1984, Horse Farm Management Lab, Lectures and Laboratory Sessions on Horse Farm Management Practices. 25 students.

Graduate Student Advising:

Ph.D. Students

Rutgers University:	Mary Beth Gordon	Major Advisor (2002-2005)
	Helio Manso	Major Advisor (2002-2005)
	Charles Kearns	Major Advisor (1996-2001)
	Paula Marie Ward	Committee Member (1995-1997)
	Angela Black, D.V.M.	Committee Member (1996)
University of Guelph	Shannon Pratt	Defense Committee External Member/Reviewer, (2005)
University of Sydney	Mathew Gerard	Dissertation External Reviewer, (2001)
University of Helsinki	Ulla-Maija Kokkonen	Dissertation External Reviewer, (2001)
University of South Florida	Todd Samelman	Chair, Dissertation Defense Committee (2000)
Ohio State University:	Brian Roche	Defense Committee (1999-2000)
Ohio State University:	Ken Hinchcliff, D.V.M.	Co-Major Advisor (1987-1990)
Ohio State University:	James Farris	Committee Member (1989-1994)
Ohio State University:	Maurie Leutkemeier	Dissertation Committee (1987)
Ohio State University:	James Schlub	Dissertation Committee (1992)

Masters Degree Students

Rutgers University:	Sara Malone	Major Advisor (2005-present)
	James Baldasari	Major Advisor (2005-present)
	Jennifer Stretslova	Major Advisor (2003-2005)
	Cynthia Betros	Major Advisor (2001-2005)
	Nettie Liburt	Major Advisor (2003-2005)
	Sunny Geiser	Major Advisor (1997-2003)
	Jacqueline Agans	Major Advisor (1996-1998)
	Rosanna Scali	Major Advisor (1996-1998)
	Lyn Venham	Committee Member (1996-1998)
	Elizabeth Kuhns	Major Advisor (1996)
Ohio State University:	Beth McNally	Major Advisor (1992-1994)
	Clara Fenger,	Major Advisor (1991-1993)

Jodi Cooley	Co-Research Advisor with D.R. Lamb
Rick Wemple	Committee Member (1993-1994)
Laura Mitten	Committee Member
Susan Holcombe	Committee Member
Marge Bernbaum	Committee Member
John Mauterer	Committee Member
Scott Hannum	HPER 693 Research Supervisor

Post-Doctoral (OSU)

Robert Heck, M.D.	Co-Advised these three residents with Dr. John Lombardo, Director of Sports Medicine at OSU, where we collaborated in the development a model for progressive resistance exercise training using ponies.
Robert Whitehead, M.D.	
Wayne Auge, M.D.	

Frank Andrews, DVM	Six month position to assist in the OSU Equine Exercise Physiology Lab, (1987-1988).
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Undergraduate Student Advising:

Rutgers University

- I serve as advisor for 80-90 Soph-Senior undergraduate Animal Science students.
- In May, 1997 I was assigned duties as one of two Freshman advisors (30-40 students/year).
- From 1996-1999 I served as an adjunct member of the Cook Scholars Program Committee reviewing applications, chairing presentation session, and reviewing final versions of the GH Cook thesis papers submitted by the students. Additionally I have served as advisor for the following students:

Tom Caltabilota	2006 - Cook Scholars Program Advisor
Justin Milizio	2006 - Cook Scholars Program Advisor
Tiffany Trotter	2005 - Cook Scholars Program Advisor
Melissa Gates	2005 - Cook Scholars Program Reader
Courtney Dean	2004 - Cook Scholars Program Advisor
Cindy Echevarria	2003 - Cook Scholars Program Advisor
Melissa Lee	2003 - Cook Scholars Program Advisor
Jessica Alberici	2003 - Cook Scholars Program Advisor
Zenithson Ng	2003 - Cook Scholars Program Advisor
Denise Ciolino	2002 - Cook Scholars Program Advisor
Robert Norton	2002 - Cook Scholars Program Advisor
Elsa Schock	2002 - Cook Scholars Program Reader
Valerie Balaskonis	2001 - Cook Scholars Program Advisor
Amanda Szucsik	2001 - Cook Scholars Program Advisor
Maggie Struck	2001 - Cook Scholars Program Advisor
Taryn Eaton	1999 - Cook Scholars Program Advisor
Jamie Elia	1999 - Cook Scholars Program Reader
Lisa Antas	1996 - Cook Scholars Program Advisor
Jackie McClain	1996 - Cook Scholars Program Reader
Rebecca Fays	1996 - Cook Scholars Program Reader

4. Each year I also serve as advisor for 15 to 20 students per semester for experiential based classes including Cooperative Education, Animal Science Problems, Honors Tutorial. Each student assisted in projects conducted in the Equine Exercise Physiology Lab.

Ohio State University--Students who were mentored and assisted in my lab at OSU:

Doug Finley	Student Lab Assistant (Exercise Physiology Student)
Crystal Ponser	Work Study Supervisor (Currently a practicing veterinarian)
Michael Howenstein	Work Study Supervisor (Currently a practicing veterinarian)
Melorie Kip	Work Study Supervisor
Arabella Nuygen	Work Study Supervisor
Toby Burke	Work Study Supervisor
Kevin Kirby	Student Lab Assistant (Aerospace Engineering Student)
Eric Rennie	Student Lab Assistant (Exercise Physiology Student)
Richard Yurich	Advised & sponsored for admission to Exer. Physiol. Prgm
Shelly Zimmerman	Work Study Supervisor (Vocational Agriculture Instructor)
Veronica Wong	Work Study Supervisor (Currently a practicing DVM)
Laura Schmidt	Work Study Supervisor (Currently a practicing DVM)

High School Students

I believe one should strive to provide educational opportunities to recruit minority and women students into the biomedical sciences. The following students have participated in Summer research programs in my laboratory:

Rutgers:

Shanta Jones	1999	American Chemical Society Seed Program - Mentor
Vivek Sharma	1998	American Chemical Society Seed Program - Mentor
Yanerez Diaz	1997	American Chemical Society Seed Program - Mentor
Tiffany Horton	1996	NJAES-Cook College Discovery Academic Enrichment Program Mentor
Natalie Ogonowski	1996	NJAES-Cook College Discovery Academic Enrichment Program Mentor
Edina Montanaro	1996	NJAES-Cook College Discovery Academic Enrichment Program Mentor
Arpana Pillay	1996	American Chemical Society Seed Program - Mentor

Ohio State University:

Alpha Griffin	1993	NIH-Summer Minority Research Apprenticeship Program.
Suprina Nindra	1992	NIH-Summer Minority Research Apprenticeship Program. Won best presentation award for students working in the College of Veterinary Med.
Danielle Ginn	1991	NIH-Summer Minority Research Apprenticeship Program
Lannelle Williams	1990	NIH-Summer Minority Research Apprenticeship Program

Student Organizations

- Faculty Advisor for the Rutgers Water Polo Club (25 students).
- Faculty Advisor for the OSU Men's Water Polo Club (25 students).
- Faculty Advisor for the OSU Women's Water Polo Club (15 students).

Continuing Education Lectures

- Presenter -- 2001 Rutgers Horseman's Management Course
- Presenter -- 1996 Rutgers Horseman's Management Course
- Presenter -- 1995 Rutgers Horseman's Management Course
- Moderator and Presenter -- 1988 College of Veterinary Med. Horseman's Short Course
- Presenter -- 1989 OSU College of Veterinary Medicine Equine Practitioner Short Course
- Presenter -- 1990 OSU College of Veterinary Medicine Equine Practitioner Short Course

Other Activities:

Water Polo Coach - Rutgers Water Polo Club 2003-Present

Goalie - OSU Water Polo Club, North Coast Water Polo Club, and Columbus Crush Water Polo Club (1987-1995); Rutgers Water Polo Clubs (1996-Present).