

CURRICULUM VITAE

Gregory D. Cartee, Ph.D.

ADDRESS:

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EDUCATION:

1985-1988 Postdoctoral Fellow, Washington University School of Medicine, St. Louis
Mentor: Dr. John O. Holloszy
1985 Ph.D., Exercise Physiology, University of Texas at Austin.
Dissertation: The Effects of Age and Endurance Training on the Oxidative Metabolism
of Fisher 344 Rats
Mentor: Dr. Roger P. Farrar
1981 M.S., Exercise Physiology, The Florida State University, Tallahassee.
Mentor: Dr. Charles E. Riggs
1979 B.S., Health and Physical Education, University of Georgia, Athens.

PROFESSIONAL EXPERIENCE:

2004-present University of Michigan
Professor, Division of Kinesiology,
Research Professor, Institute of Gerontology, Medical School
2007 Program in Biomedical Sciences, Graduate Research Mentor
2007 Graduate Program in Cellular and Molecular Biology, Faculty Mentor
2001-2003 University of Wisconsin-Madison
Department of Kinesiology, Chair
1998-2003 University of Wisconsin-Madison
Professor, Department of Kinesiology
1994-1998 University of Wisconsin-Madison
Associate Professor, Department of Kinesiology
1993-1995 University of Wisconsin-Madison
Biodynamics Laboratory Director (Acting)
1989-1994 University of Wisconsin-Madison
Assistant Professor, Department of Kinesiology
Interdepartmental Graduate Program in Nutritional Sciences, Affiliate
Institute on Aging, Affiliate
1988-1989 Washington University School of Medicine, St. Louis, Missouri
Research Instructor in Medicine, Department of Internal Medicine

GRANTS RECEIVED:

Extramural:

2007 National Institutes of Health, R01 AG010026, "Aging, Calorie Restriction and Insulin
Signaling, \$1,541,912, **Principal Investigator.**

- 2007 National Institutes of Health, R01 AG010026-S1, "Aging, Calorie Restriction and Insulin Signaling", Supplement, \$76,000, **Principal Investigator**.
- 2006 National Institutes of Health, R01 DK071771, "Skeletal Muscle Glucose Transport: Exercise and Insulin" \$1,532,000, **Principal Investigator**.
- 2004 National Institutes of Health, University of Michigan Claude D. Pepper Older Americans Independence Center Pilot Grant (Jeffrey Halter, Principal Investigator), "In Vitro Models for Insulin Sensitivity in Rat Muscle", \$61,200, **Principal Investigator**.
- 2001 National Institutes of Health, R01 AG010026, "Aging, Calorie Restriction, and Insulin Signaling", Continuation, \$1,166,250, **Principal Investigator**.
- 1999 National Institutes of Health, "Dietary Restriction and Aging in Rhesus Monkeys", Continuation, \$5,611,100, **Co-Investigator**.
- 1998 National Institutes of Health, R01 AG010026, "Aging, Calorie Restriction, and Insulin Signaling", \$558,989, **Principal Investigator**.
- 1998 Ross Products Division, Abbott Laboratories, "Research in Carbohydrate Metabolism", \$19,600, **Principal Investigator**.
- 1998 Ross Products Division, Abbott Laboratories, "Yeast Extract and Glucose Metabolism", \$5400, **Principal Investigator**.
- 1998 National Institutes of Health, "Dietary Restriction, mt DNA Abnormalities and Aging", \$549,739, **Co-Investigator**.
- 1997 Ross Products Division, Abbott Laboratories, "Research in Carbohydrate Metabolism", \$4500, **Principal Investigator**.
- 1996 The Quaker Oats Company Student Research Grants, "Influence of Nutritional Intervention on GLUT-4 Plasma Membrane Localization in Muscle" and "Determination of Exercise- Induced Changes in Muscle TNF- α Receptor Levels", \$2000, **Sponsor**.
- 1995 The Quaker Oats Company Student Research Grants, "Effect of Vitamin and Mineral Supplementation on Muscle Glycogen Content during Brief Caloric Restriction" and "The Age-Related Reduction in Glucose Transport during Growth and Development", \$1600, **Sponsor**.
- 1994 National Institutes of Health, "Dietary Restriction and Aging in Rhesus Monkeys", \$4,541,955, **Co-Investigator**.
- 1992 The Quaker Oats Company Student Research Grant, "The Effect of PGE₂ on Insulin Sensitivity in Exercised Skeletal Muscle", \$850, **Sponsor**.
- 1992 National Institutes of Health, R29 AG010026, "Age Effects on Exercise-Stimulation of Glucose Transport", \$480,293, **Principal Investigator**.
- 1992 National Institutes of Health, "Glucose Metabolism in the Exercise Trained Heart", \$494,473, **Collaborating Investigator**.
- 1991 Diabetes Education and Research Foundation, "Do Insulin and Contractile Activity Increase Glucose Transport Rate by Stimulating the Movement of Glucose Transporters from Different Intracellular Sites?", \$17,000, **Principal Investigator**.
- 1991 American Federation for Aging Research, "Mechanisms of Altered Glucose Metabolism with Chronic Growth Hormone Treatment in Mature, Middle-aged and Old Rats", \$22,000, **Principal Investigator**.
- 1991 The Quaker Oats Company Student Research Grant, "The Persistent Effect of Exercise on Skeletal Muscle Amino Acid Transport", \$1000, **Sponsor**.
- 1991 American Heart Association, Wisconsin Affiliate, "Regulation of Glucose Transport in Ischemic Diabetic Myocardium", \$30,000, **Collaborating Investigator**.
- 1991 Juvenile Diabetes Foundation, "Does Acute High Dose Insulin and Glucose Therapy Benefit Diabetics with Myocardial Ischemia?", \$50,000, **Collaborating Investigator**.
- 1990 American College of Sports Medicine Foundation, "Aging Effects on Muscle Glucose Transport After Exercise", \$14,533, **Principal Investigator**.

Intramural:

- 2003 The University of Wisconsin-Madison Foundation Virginia Horne Henry Fund, "Effects of Gender on Post-Exercise Insulin Sensitivity in Skeletal Muscle", \$17,569, **Principal Investigator.**
- 2002 The University of Wisconsin-Madison Foundation Virginia Horne Henry Fund, "Effects of Pregnancy on Glucose Transport Activation by Muscle Contraction", \$19,599, **Principal Investigator.**
- 2001 The University of Wisconsin-Madison Foundation Virginia Horne Henry Fund, "Levels of Physical Activity and Physical Fitness in Women Survivors of Breast Cancer", \$31,252, **Co- Principal Investigator.**
- 1999 The University of Wisconsin-Madison Foundation Virginia Horne Henry Fund, "Influence of Strength Exercise on Insulin Sensitivity and Secretion in Post-Menopausal Women", \$18,284, **Co-Principal Investigator.**
- 1995 The University of Wisconsin-Madison Graduate School Grant-in-Aid, "Investigation of the Role of Plasma TNF- α in Obesity and Insulin Resistance in Rhesus Monkeys", \$17,816, **Principal Investigator.**
- 1991 The University of Wisconsin-Madison Graduate School Grant-in-Aid, "Investigation into the Mechanism of Enhanced Insulin-Stimulation of Muscle Glucose Transport after Contractile Activity", \$22,267, **Principal Investigator.**
- 1990 The University of Wisconsin-Madison Graduate School Biomedical Research Support Grant, "Measurement of Muscle Membrane Glucose Transporter Content", \$15,000, **Principal Investigator.**
- 1990 The University of Wisconsin-Madison Graduate School Grant-in-Aid, "Skeletal Muscle Glucose Transport Rate and Membrane Glucose Transporter Content in Young Adult and Old Rats", \$15,000, **Principal Investigator.**

AWARDS:

- 2005 Southeastern Regional Chapter of the American College of Sports Medicine (SEACSM), Invited Lecture Tour Speaker
- 2005 The American Academy of Kinesiology and Physical Education, Fellow
- 2003 Research Fellowship, Japan Society for the Promotion of Science, Nara, Japan
- 2002 Wenner-Gren Center Visiting Scientist, Karolinska Institute, Stockholm, Sweden
- 1998 Fellow, American College of Sports Medicine
- 1987 Invited Participant in the Summer Aging Institute Sponsored by the National Institute on Aging Baltimore, Maryland
- 1987 National Research Service Award, The National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health
- 1983 Professional Development Award, University of Texas at Austin
- 1982-1985 University of Texas Fellowship, University of Texas at Austin
- 1979 Magna Cum Laude Graduate, University of Georgia, Athens
- 1979 Phi Kappa Phi, National Honor Fraternity
- 1975 Incoming Freshman Award, University of Georgia, Athens.
- 1975 Valedictorian, Liberty High School, Liberty, South Carolina.

PROFESSIONAL AFFILIATIONS:

- American College of Sports Medicine, Fellow
- American Academy of Kinesiology and Physical Education, Fellow
- American Diabetes Association
- American Physiological Society
- Gerontological Society of America

PROFESSIONAL SERVICE:

National Service:

Editorial Responsibilities for Professional Journals:

- *Journal of Applied Physiology* (Associate Editor, 1999-2001)
- *Exercise and Sports Sciences Reviews* (Associate Editor, 2000-2008)
- *Journal of Gerontology: Biological Sciences* (Editorial Review Board, 1998-1999)
- *American Journal of Physiology: Endocrinology and Metabolism* (Editorial Board, 2007-2009)
- *Journal of Applied Physiology* (Editorial Board, 2007-2008)

Reviewer for Professional Journals:

- *American Journal of Physiology: Cell Physiology*
- *American Journal of Physiology: Endocrinology and Metabolism*
- *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*
- *American Journal of Physiology: Lung Cellular and Molecular Physiology*
- *Diabetes*
- *Diabetologia*
- *Essays in Biochemistry*
- *Experimental Gerontology*
- *Exercise and Sport Sciences Reviews*
- *FASEB Journal*
- *Hormones and Behavior*
- *The International Journal of Biochemistry & Cell Biology*
- *International Journal of Obesity*
- *International Journal of Sports Medicine*
- *Journal of the American College of Nutrition*
- *Journal of Applied Physiology*
- *Journal of Biological Chemistry*
- *Journal of Endocrinology*
- *Journal of Lipid Research*
- *Journal of Nutrition*
- *Life Sciences*
- *Mechanisms of Ageing and Development*
- *Medicine and Science in Sports and Exercise*
- *Metabolism: Clinical and Experimental*
- *Molecular and Cellular Biochemistry*
- *Obesity Research*
- *Physiological Genomics*
- *Proceedings of National Academy of Sciences, U.S.A.*
- *The Journals of Gerontology: Biological and Medical Sciences*
- *The Journal of Physiology*
- *The Journal of Physiological Sciences*

Committees and Invited Reviews:

- Abstract Reviewer for American College of Sports Medicine National Meeting, 1990, 1994 and 1996.
- Department of Veterans Affairs Merit Review Research Application Reviewer, 1992 and 1998.
- *Exercise Physiology: Theory and Application to Fitness and Performance* by S.K. Powers and E.T. Howley, Wm. C. Brown Publishers, Reviewer, 1993 and 1995.

- American Heart Association, Minnesota Affiliate Grant-in-Aid Reviewer, 1994.
- American Heart Association-Wisconsin Peer Review Committee, 1995.
- University of Michigan Geriatrics Center, Institute of Gerontology and Michigan Alzheimer's Disease Research Center Pilot Feasibility Grant Program, External Reviewer, 1996, 1999, and 2003.
- National Institutes of Health Special Emphasis Panel on Geriatrics & Rehabilitation Medicine, Ad Hoc Reviewer, 1997.
- National Institutes of Health (Fellowship/AREA Special Emphasis Panel on Geriatrics & Rehabilitation Medicine), Member, 1998.
- National Institutes of Health (Oral Biology and Medicine Study Section), Ad Hoc Reviewer, 1998.
- Experimental Biology Meeting, Abstract Reviewer, 1998.
- American College of Sports Medicine Research Review Committee, 1999-2001.
- National Institutes of Health (Respiratory and Applied Physiology Study Section), Temporary Member, 1999, 2000 and 2001.
- National Institutes of Health (Geriatrics and Rehabilitation Medicine Study Section), Temporary Member, 2000.
- Washington University in St. Louis School of Medicine Diabetes Research Training Center Pilot and Feasibility Grant Reviewer, 2000.
- Opponent for Ph.D. Dissertation Defense of Xiao Mei Song, Department of Surgical Sciences, Section for Clinical Physiology, Karolinska Institute, Stockholm, Sweden, 2000.
- National Institutes of Health (Respiratory and Applied Physiology Study Section, Skeletal Muscle Biology Special Emphasis Panel), Regular Member, 2001-2005 and 2006-2010.
- Reviewer of Abstracts for American Diabetes Association Meeting, 2003, 2004.
- Research Career Development Core Award for National Institute on Aging sponsored University of Michigan Older American Independence Center, External Reviewer, 2003.
- University of Texas Health Science Center in San Antonio, Nathan Shock Center of Excellence in Basic Biology of Aging, Aging Research and Education Center Pilot Grant Reviewer, 2003.
- National Institutes of Health (Musculoskeletal, Oral and Skin Sciences: Integrated Review Group Special Emphasis Panel), Ad hoc Reviewer, 2004.
- National Science Foundation, Ad hoc Reviewer, 2005.
- American Diabetes Association Scientific Sessions Ad Hoc Subcommittee on Exercise, Member, 2005 and 2006.
- Alberta Heritage Foundation for Medical Research Scholar Award, Ad hoc Reviewer, 2005.
- American Diabetes Association Scientific Sessions, Integrated Physiology-Muscle Section, Abstract Reviewer, 2006.
- Diabetes UK, Ad hoc Research Grant Reviewer, 2006.
- American Physiological Society's Porter Physiology Development Committee, 2007-2009.
- University of Utah Center on Aging Pilot Grant Program, Ad hoc Reviewer, 2007.

Invited Lectures:

- "Effects of Exercise and Hypoxia on Skeletal Muscle Glucose Transport", Department of Cell Biology, University of Toronto, Toronto, Ontario, Canada, 1989.
- "Stimulation of Muscle Glucose Transport by Exercise, Hypoxia, and Insulin", Department of Kinesiology, University of Texas, Austin, Texas, 1989.
- "Influence of Exercise on Skeletal Muscle Glucose Transport", Department of Exercise and Sport Sciences, Tucson, Arizona, 1989.
- "Exercise Effects on Muscle Glucose Transport", Exercise Physiology Laboratory, Ohio State University, Columbus, Ohio, 1989.
- "Effects of Exercise on Skeletal Muscle Glucose Transport", Center for Exercise Science and Cardiovascular Research, Northeastern Illinois University, Chicago, Illinois, 1989.

- "Adaptability of Skeletal Muscle During the Aging Process", Department of Kinesiology, University of Texas, Austin, Texas, 1992.
- "Effects of Growth Hormone Supplementation on Skeletal Muscle Glucose Transport in Young, Middle-aged, and Old Rats", American Federation for Aging Research Grantee Conference, Briarcliff, New York, 1992.
- "Adaptations of Muscle Glucose Transport to Dietary and Exercise Interventions across the Lifespan", Department of Kinesiology, Louisiana State University, Baton Rouge, Louisiana, 1993.
- "Skeletal Muscle Glucose Transport", Institute of Pharmacology, Syntex Discovery Research, Palo Alto, California, 1993.
- "Exercise and Aging: A Molecular Approach, Substrate Availability and Utilization", American College of Sports Medicine Meeting, Seattle, Washington, 1993.
- "Aging and Skeletal Muscle", National Institutes of Health Workshop on Dietary Restriction in Non-human Primates, Devils Head, Wisconsin, 1993.
- "Interaction among Age, Diet and Exercise in the Regulation of Skeletal Muscle Glucose Transport", Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, Louisiana, 1994.
- "Influence of Growth Hormone Supplementation on Skeletal Muscle Glucose Transport of Adult and Old Rats", Joslin Diabetes Center, Boston, Massachusetts, 1994.
- "What Insights into Age-related Changes in Human Skeletal Muscle Can Be Derived from Animal Models?", NIH Workshop on Sarcopenia, Warrenton, Virginia, 1994.
- "Energy Metabolism and Fuel Utilization in Endurance Sports", Sports Nutrition Conference, Caracas, Venezuela, 1995.
- "Influence of Caloric Restriction on Skeletal Muscle Glucose Transport", Experimental Diabetes, Metabolism, and Nutrition Section, National Institutes of Health, Bethesda, Maryland, 1996.
- "Effect of Hypoxia on Glucose Transport in Isolated Muscle", American College of Sports Medicine Meeting, Cincinnati, Ohio, 1996.
- "Mechanisms Underlying the Calorie Restriction-Induced Increase in Insulin Sensitivity", University of Texas Health Science Center at San Antonio, Department of Physiology, San Antonio, Texas, 1997.
- "Influence of Physical Activity on Sarcopenia: An Age-related Loss of Skeletal Muscle Mass and Function", The Gerontological Society of America Meeting, Cincinnati, Ohio, 1997.
- "Nutritional Influences on Skeletal Muscle Insulin Signal Transduction", American College of Sports Medicine Meeting, Orlando, Florida, 1998.
- "Insights Gained by Studying the Effects of Exercise and Diet on Insulin Action", Parke-Davis Pharmaceutical Research, Ann Arbor, Michigan, 1998.
- "Skeletal Muscle Glucose Transport: Influence of Exercise, Nutrition, and Aging", Department of Kinesiology, University of Colorado, Boulder, Colorado, 1998.
- Regulation of Skeletal Muscle Glucose Transport: Effects of Calorie Restriction, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, South Carolina, 2000.
- "Does Age Alter Skeletal Muscle Adaptability to the Physiologic Stress of Exercise or Caloric Restriction?", American Aging Association Meeting, Boston, Massachusetts, 2000.
- "Exercise and Aging: Skeletal Muscle Insulin Signaling and Action", Integrative Biology of Exercise Meeting Sponsored by the American Physiological Society, Portland, Maine, 2000.
- "Reduced Calorie Intake: Influence on Insulin Sensitivity and Insulin Signaling", Department of Surgical Sciences, Section for Clinical Physiology, Karolinska Institute, Stockholm, Sweden, 2000.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction", From Basic Biology to Clinical Care: New Research Directions for Understanding Diabetes in Older Age, A Scientific Conference Sponsored by: National Institute of Diabetes & Digestive & Kidney Disease, National Institute on Aging, and Diabetes Mellitus Interagency Coordinating Committee, Bethesda, Maryland, 2001.

- “Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction”, IGF-1 and Insulin Pathways as Modulators of Longevity and Late-Life Disease Symposium, The Nathan Shock Center for the Biology of Aging and Claude Pepper Older American Independence Center, University of Michigan, Ann Arbor, Michigan, 2001.
- “Aging and Exercise: Influence on Insulin Signaling and Action”, International Congress of Physiological Societies, Christchurch, New Zealand, 2001.
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction”, Department of Physiology, University of Arizona, Tucson, Arizona, 2001.
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction”, Department of Endocrinology and Diabetology, Karolinska Hospital, Stockholm, Sweden, 2002.
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction”, Washington University School of Medicine, St. Louis, Missouri, 2002.
- “Insulin Signaling and Action: Effects of Age, Exercise, and Caloric Restriction”, University of Illinois at Urbana-Champaign, Urbana, Illinois, 2002.
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Exercise, and Caloric Restriction”, University of Michigan, Ann Arbor, Michigan, 2002.
- “Insulin Signaling and Action in Skeletal Muscle: Influence of Caloric Restriction”, Washington University School of Medicine, St. Louis, Missouri, 2003.
- “Insulin Signaling and Action in Skeletal Muscle: Influence of Caloric Restriction”, Calorie Restriction Society Conference, Madison, Wisconsin, 2003.
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Exercise and Calorie Restriction”, NIH of Japan, Tokyo, Japan, 2003
- “Overview of Signaling Pathways for Glucose Transport in Skeletal Muscle”, Osaka Technical University, Osaka, Japan, 2003
- “Overview of Signaling Pathways for Glucose Transport in Skeletal Muscle”, Nara University of Education, Nara, Japan, 2003
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Calorie Restriction or Exercise”, 2nd Annual Nathan W. Shock Symposium, sponsored by the National Institute on Aging, Towson, Maryland, 2004
- “Skeletal Muscle Metabolism: Effects of Exercise, Aging, and Calorie Restriction”, University of Texas-Austin Department of Kinesiology, Austin, Texas, 2004
- “Insulin Signaling and Action in Skeletal Muscle: Effects of Calorie Restriction”, Department of Nutrition, Case Western Reserve University, Cleveland, Ohio, 2005.
- “Mechanisms for Altered Insulin Signaling and Action with Exercise or Calorie Restriction”, SEACSM Lecture Tour, Department of Exercise Science, University of South Carolina, Columbia, South Carolina, 2005.
- “Mechanisms for Altered Insulin Signaling and Action with Exercise or Calorie Restriction”, SEACSM Lecture Tour, Department of Kinesiology and Division of Endocrinology and Metabolism, Endocrinology Seminar Series, University of Virginia, Charlottesville, Virginia, 2005.
- “Mechanisms for Altered Insulin Signaling and Action with Exercise or Calorie Restriction”, SEACSM Lecture Tour, Department of Exercise Science, East Carolina University, Greenville, North Carolina, 2005.
- “Can Exercise Prevent the Predicted Diabetes Disaster?”, SEACSM Lecture Tour, Department of Health, Leisure & Exercise Science, Appalachian State University, Boone, North Carolina, 2005.
- “Can Exercise Prevent the Predicted Diabetes Disaster?”, SEACSM Lecture Tour, Department of Exercise and Sport Science, University of North Carolina-Greensboro, Greensboro, North Carolina, 2005.

- “Effects of Exercise, Contractile Activity and Insulin on AS160 Phosphorylation in Skeletal Muscle”, Exercise, Insulin Sensitivity and Diabetes – What is New? International Symposium, Copenhagen Muscle Research Center, Copenhagen, Denmark, 2006.
- “AS160 – A Link between Insulin and Contraction in Skeletal Muscle?” ACSM Conference on Integrative Physiology of Exercise, Indianapolis, Indiana, 2006.
- “Effects of Exercise or Calorie Restriction on Skeletal Muscle Insulin Sensitivity and Action”, Department of Pharmaceutical Sciences, Wayne State University, Detroit, MI, 2006.
- “Do Insulin and Contraction Stimulated Signaling Converge at AS160 in Skeletal Muscle?”, Department of Integrative Physiology, University of Colorado, Boulder, CO, 2007.
- “Why is Skeletal Muscle Glucose Uptake Important for Health?”, Nara University of Education, Nara, Japan, 2007.
- “Do Insulin and Contraction Stimulated Signaling Converge at AS160 in Skeletal Muscle?”, Kyoto University, Kyoto, Japan, 2007.

University Service:

- School of Education Programs Committee, UW-Madison, 1990-1991
- Graduate School Animal Care Committee, UW-Madison, 1991-1995
- National Accreditation Review of Physical Therapy Program, Participant, UW-Madison, 1991
- Ad Hoc Committee for Amendment Process for Animal Care and Use, UW-Madison, 1992
- Summer Research Program for Minority Undergraduates Mentor, UW-Madison, 1994-1996
- Committee on Graduate Assistant Policies and Procedures, School of Education, UW-Madison, 1997-1999, Chair
- Interdepartmental Graduate Program in Nutritional Sciences Admissions Committee, UW-Madison, 1996-1998
- Department of Nutritional Sciences Faculty Search Committee, UW-Madison, 1996
- Selection Committee for NIH Training Grant on Biology of Aging and Age-Related Diseases, UW-Madison, 1998
- Department of Veteran’s Affairs Merit Review Application, Reviewer, UW-Madison, 1998
- Academic Advisory Council for Physical Therapy Master’s Degree, UW-Madison, 1998-1999
- Institute on Aging Steering Committee, UW-Madison, 1999-2003
- School of Education International Committee, UW-Madison, 1999-2001
- School of Education Academic Planning Council, UW-Madison, 2001-2003
- School of Education Administrative Council, UW-Madison, 1993-1996; 2001-2003
- School of Medicine, Mentor Committee for Assistant Professor Kurt Saupe, UW-Madison, 2002-2003
- Hatch Grant Reviewer for College of Agriculture & Life Sciences, UW-Madison, 2002
- Virginia Horne Henry Fund Grant Review Committee, UW-Madison, 2003
- Nathan Shock Center Internal Advisory Committee, Institute on Gerontology, University of Michigan, 2004-08
- Reviewer for Office of the Vice President for Research Faculty Grants and Awards, University of Michigan, 2007

Invited Lectures:

- "Regulation of Skeletal Muscle Glucose Transport", Department of Nutritional Sciences, UW-Madison, 1990.
- "Age-related Effects on Skeletal Muscle Glucose Transport", Department of Medicine, Section of Endocrinology, UW-Madison, 1992.
- "Age-related Effects on Muscle Glucose Transport", Institute on Aging, UW-Madison, 1992.
- "Skeletal Muscle Insulin Resistance", Department of Psychology, UW-Madison, 1993.

- "Growth Hormone Reduces Skeletal Muscle Glucose Transport but not GLUT-4 Glucose Transporter Protein in Adult, Middle-Aged and Old Rats", Institute on Aging and Adult Life Colloquium on Aging, UW-Madison, 1994.
- "Regulation of Skeletal Muscle Glucose Transport by Insulin and Exercise", Summer Research Program for Minority Undergraduates, UW-Madison, 1994.
- "Influence of Growth Hormone Administration on Skeletal Muscle of Young and Old Rats", Wisconsin Regional Primate Center, UW-Madison, 1995.
- "Influence of Caloric Restriction on Muscle Carbohydrate Metabolism", Department of Nutritional Sciences, UW-Madison, 1996.
- "Effect of Hypoxia on Muscle Glucose Transport", Department of Preventive Medicine, UW-Madison, 1996.
- "Aging and Muscle Function", Departments of Neurology and Kinesiology (742-779), UW-Madison, 1997, 1998, 1999, 2000, 2001.
- "Influence of Exercise on Sarcopenia (Age-Related Changes in Skeletal Muscle)", Department of Kinesiology, Motor Behavior Seminar, UW-Madison, 1998.
- "Sarcopenia" and "Exercise and Aging (3 lectures)", Department of Pathology (Cell and Molecular Biology of Aging), UW-Madison, 1998, 1999, 2000.
- "Diabetes and Exercise", Department of Kinesiology, Physical Activity and Health (742-521), UW-Madison, 2001.
- "Glucoregulation and Insulin Action", Department of Nutritional Sciences, UW-Madison, 1998, 1999, 2000, 2001.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Caloric Restriction", Endocrine and Reproductive Physiology Seminar, Department of Animal Science, UW-Madison, 2001.
- "Can Exercise Prevent or Delay Type 2 (Adult Onset) Diabetes?" Institute on Aging Advisory Board Meeting, UW-Madison, 2001.
- "Can Exercise Prevent or Delay Type 2 (Adult Onset) Diabetes? Institute on Aging "On the Road" Program for UW-Madison Alumni, Minneapolis, MN, 2001.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Calorie Restriction", Gas Club, Department of Preventive Medicine, UW-Madison, 2001.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Calorie Restriction", Institute of Gerontology, University of Michigan, 2004.
- "Effects of Aging and Calorie Restriction on Insulin Signaling and Action in Skeletal Muscle", 13th Annual Summer Training Course in the Biology of Aging, National Institute on Aging and University of Michigan Geriatrics Center, Ann Arbor, Michigan, 2005.
- "Increased Phosphorylation of Akt Substrate of 160 kDa (AS160) in Rat Skeletal Muscle in Response to Insulin or Contractile Activity", Center for Exercise Research Seminar, Division of Kinesiology, University of Michigan, 2005.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Calorie Restriction," Department of Physiology, University of Michigan, 2005.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Age and Calorie Restriction", Richard Miller Laboratory, Geriatrics Center, University of Michigan, 2005.
- "Mechanisms for Improved Insulin Signaling with Exercise or Calorie Restriction", Metabolism, Endocrinology & Diabetes Research Conference, University of Michigan Medical School, 2005.
- "Insulin Signaling and Action in Skeletal Muscle: Effects of Calorie Restriction", Biology of Aging Seminar Series, University of Michigan, 2006.
- "Do Insulin and Contraction Stimulated Signaling Converge at AS160 in Skeletal Muscle?" Michigan Diabetes Research and Training Center Winter Symposium, University of Michigan, 2007.
- "Aging and Calorie Restriction: Effects on Glucose Metabolism and Insulin Signaling", Biogerontology Seminar Series, University of Michigan, 2007.

- “Role of Akt Substrate of 160kDa in Insulin-stimulated and Contraction-stimulated Glucose Transport”, Program in Biomedical Sciences Faculty Seminar, University of Michigan, 2007.
- “Mechanisms for Increased Skeletal Muscle Glucose Transport after Exercise”, Department of Molecular and Integrative Physiology, University of Michigan, 2007.

Kinesiology Committee Memberships:

- Undergraduate Committee, UW-Madison, 1989-1995
- Merit Committee, UW-Madison, 1989, 1993, 1995 and 2001
- Student Grievance Committee, UW-Madison, 1989-1992 and 1994
- Future Directions Committee, UW-Madison, 1989
- Biomechanics Search Committee, UW-Madison, 1990
- Pedagogy Search Committee, UW-Madison, 1991
- Human Subjects Committee, Chair, UW-Madison, 1991-1993
- Faculty Associate Search Committee, Chair, UW-Madison, 1993
- Exercise Physiology Search Committee, UW-Madison, 1993
- Motor Control/Behavior Search Committee, UW-Madison, 1994
- Scholarship, Assistantship, and Student Affairs Committee, UW-Madison, 1994
- Mentor Committee for Assistant Professor Barbara Loitz, UW-Madison, 1995-1996
- Mentor Committee for Assistant Professor Kreg Gruben, Chair, UW-Madison, 1995-2001
- Faculty Workload Policies and Procedures Ad Hoc Committee, UW-Madison, 1995
- Physical Therapy Search Committee, UW-Madison, 1995
- Department of Kinesiology Mission Statement Ad Hoc Committee, UW-Madison, 1995
- Department of Kinesiology Laboratory Manager Search Committee, Chair, UW-Madison, 1995
- Graduate Program, Coordinator, UW-Madison, 1995-1997
- Graduate Committee, UW-Madison, 1998-2001
- Mentor Committee for Assistant Professor Barbara Morgan, Chair, UW-Madison, 1995-1997
- Teaching Assistant Ad Hoc Committee, UW-Madison, 1995-1997
- Mentor Committee Policies and Procedures Ad Hoc Committee, UW-Madison, 1995
- Mentor Committee for Assistant Professor Peter van Kan, Chair, UW-Madison, 1997-2001
- Physical Therapy Search Committee, UW-Madison, 1996
- Exercise Physiology Search Committee, Chair, 1997
- Mentor Committee for Assistant Professor Gary Diffie, UW-Madison, 1997-2001
- Space, Technology and Facilities Committee, Chair, UW-Madison, 1997-2001
- Division of Kinesiology Executive Committee, University of Michigan, 2004-2005
- Movement Science Department Chair, University of Michigan, 2005-2007
- Biomechanics Assistant/Associate Professor Search Committee, University of Michigan, 2005-2006
- Mentor for Assistant Professor Riann Palmieri, University of Michigan, 2005-2008
- Exercise Physiology Assistant/Associate Professor Search Committee, University of Michigan, Chair, 2006-2007

TEACHING:

M.S. Thesis and Ph.D. Preliminary Examination and Dissertation Committees:

- Eric Kietzke, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Carol Briggs-Tung, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Thomas Wetter, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Erika Bohn Goldbaum, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- David Dean, Ph.D., Major Professor, University of Wisconsin-Madison (Nutritional Sciences)
- Annie Gazdag, Ph.D., Major Professor, University of Wisconsin-Madison (Nutritional Sciences)

- Charles Dumke, Ph.D., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Joel Chapman, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Lisa Sanborn, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Raquel Sancho-Solis, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Matthew Bruss, M.S., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Junghoon Kim, Ph.D., Major Professor, University of Wisconsin-Madison (Kinesiology)
- Carrie McCurdy, Ph.D., Major Professor, University of Wisconsin-Madison (Nutritional Sciences)
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- Mark Tetric, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Ann Garvin, Ph.D., University of Wisconsin-Madison (Kinesiology)
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- John Swallow, Ph.D., University of Wisconsin-Madison (Zoology)
- Kevin Bonine, Ph.D., University of Wisconsin-Madison (Zoology)
- Theresa Gresl, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Sadeeka Al-Majid, Ph.D., University of Wisconsin-Madison (Nursing)
- Terri Gomez, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Samuel Nadler, Ph.D., University of Wisconsin-Madison (Biochemistry)
- Susanne Votruba, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Thomas Wetter, Ph.D., University of Wisconsin-Madison (Kinesiology)
- Justin Rhodes, Ph.D., University of Wisconsin-Madison (Zoology)
- Cynthia Bartok, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Karen Kritsch, Ph.D., University of Wisconsin-Madison (Nutritional Sciences)
- Entela Bua, Ph.D., University of Wisconsin-Madison (Animal Health and Biological Science)
- Joshua Rodman, Ph.D., University of Wisconsin-Madison (Kinesiology)
- Allen Herbst, Ph.D., University of Wisconsin-Madison (Animal Health and Biological Science)

- Emily Kircher, Ph.D., University of Wisconsin-Madison (Environmental Toxicology)
- Hans Haverkamp, Ph.D., University of Wisconsin-Madison (Kinesiology)
- Jordan Miller, Ph.D., University of Wisconsin-Madison (Kinesiology)
- David Morris, Ph.D., University of Michigan (Molecular and Integrative Physiology)
- Simon Schenk, Ph.D., University of Michigan (Kinesiology)
- Chris Herman, University of Michigan (Kinesiology)
- Andrea Cornford, University of Michigan (Kinesiology)

Post-doctoral Trainees

- Edward B. Arias, Ph.D.
- Robert T. Davidson, Ph.D.
- Taku Hamada, Ph.D.
- Naveen Sharma, Ph.D.

University Courses Taught:

- Graduate Physiology (PT-503), Washington University School of Medicine Program in Physical Therapy
- Exercise, Nutrition and Health (740-100), University of Wisconsin-Madison
- Physiology of Exercise (742-314), University of Wisconsin-Madison
- Physical Activity and Health (742-521), University of Wisconsin-Madison
- Biological Factors Influencing Exercise Performance (742-614), University of Wisconsin-Madison
- Laboratory Techniques in Exercise Physiology (742-615), University of Wisconsin-Madison
- Metabolic Responses to Exercise and Environmental Stress (742-774), University of Wisconsin-Madison
- Nutritional Sciences Seminar (694-931), University of Wisconsin-Madison
- Human Biodynamics Seminar (742-953), University of Wisconsin-Madison
- Metabolic Responses to Exercise (KINSLGY-511), University of Michigan
- Graduate Seminar: Movement Science (KINSLGY-600), University of Michigan
- Metabolic Responses to Exercise (KINSLGY-545), University of Michigan

PUBLICATIONS:

Primary Research Publications:

1. Johnston, C.S., G.D. Cartee and B.E. Haskell. Effect of ascorbic acid nutriture on protein-bound hydroxyproline in guinea pig plasma. *J. Nutr.* 115:1089-1093, 1985.
2. Young, D.A., J.J. Uhl, G.D. Cartee and J.O. Holloszy. Activation of glucose transport in muscle by prolonged exposure to insulin. *J. Biol. Chem.* 261(34):16049-16053, 1986.
3. Cartee, G.D. and R.P. Farrar. Muscle respiratory capacity and VO₂max in identically trained young and old rats. *J. Appl. Physiol.* 63:257-261, 1987.
4. Macrae, P.G., W.W. Spirduso, G.D. Cartee, R.P. Farrar and R.E. Wilcox. Endurance training effects on striatal D2 dopamine receptor binding and striatal dopamine metabolite levels. *Neurosci. Letters.* 79:138-144, 1987.
5. Cartee, G.D. and R.P. Farrar. Exercise training induces glycogen sparing during exercise by old rats. *J. Appl. Physiol.* 64:259-265, 1988.
6. Klip, A., T. Ramlal, A.G. Douen, E. Burdett, D. Young, G.D. Cartee, and J.O. Holloszy. Insulin-induced decrease in 5' nucleotidase activity in skeletal muscle membranes. *Fed. Euro. Biochem. Soc.* 238:419-423, 1988.
7. S.H. Constable, R.J. Favier, G.D. Cartee, D.A. Young and J.O. Holloszy. Muscle glucose transport: interactions of in vitro contractions, insulin, and exercise. *J. Appl. Physiol.* 64:2329-2332, 1988.
8. Farrar, R.P., J.W. Starnes, G.D. Cartee, P.Y. Oh and H.L. Sweeney. Effects of exercise on cardiac myosin isozyme composition during the aging process. *J. Appl. Physiol.* 64:880-883, 1988.

9. Cartee, G.D., D.A. Young, M.D. Sleeper, J. Zierath, H. Wallberg-Henriksson and J.O. Holloszy. Prolonged increase in insulin-stimulated muscle glucose transport after exercise. *Am. J. Physiol.* 256 (*Endocrinol. Metab.* 19): E494-E499, 1989.
10. Douen, A.G., T. Ramlal, A. Klip, D.A. Young, G.D. Cartee and J.O. Holloszy. Exercise-induced increase in glucose transporters in plasma membranes of rat skeletal muscle. *Endocrinology.* 124:449-454, 1989.
11. Lawrence, J.C., J. Colvin, G.D. Cartee and J.O. Holloszy. Effects of aging and exercise on insulin action in rat adipocytes are correlated with changes in fat cell volume. *J. Geront.: Biol. Sci.* 44:B88-92, 1989.
12. Cartee, G.D. and J.O. Holloszy. Exercise increases susceptibility of muscle glucose transport to activation by various stimuli. *Am. J. Physiol.* 258 (*Endocrinol. Metab.* 21): E390-E393, 1990.
13. Klip, A., T. Ramlal, G.D. Cartee, E.A. Gulve and J.O. Holloszy. Insulin-induced recruitment of glucose transporters to the plasma membrane in skeletal muscle from diabetic rats. *Biochem. Biophys. Res. Comm.* 172: 728-736, 1990.
14. Douen, A.G., T. Ramlal, S. Rastogi, P.J. Bilan, G.D. Cartee, M. Vranic, J.O. Holloszy and A. Klip. Exercise induces recruitment of the "insulin responsive glucose transporter". *J. Biol. Chem.* 265:13427-13430, 1990.
15. Douen, A.G., T. Ramlal, G.D. Cartee and A. Klip. Exercise modulates the insulin-induced translocation of glucose transporters in rat skeletal muscle. *FEBS Letters.* 261: 256-260, 1990.
16. Gulve, E.A., G.D. Cartee, J.R. Zierath, V.M. Corpus and J.O. Holloszy. Reversal of enhanced muscle glucose transport after exercise: roles of insulin and exercise. *Am. J. Physiol.* 259 (*Endocrinol. Metab.* 22): E331-E335, 1990.
17. Cartee, G.D., A.G. Douen, T. Ramlal, A. Klip and J.O. Holloszy. Glucose transport in skeletal muscle: stimulation by hypoxia. *J. Appl. Physiol.* 70: 1593-1600, 1991.
18. Gulve, E.A., G.D. Cartee, J.H. Youn and J.O. Holloszy. Prolonged incubation of skeletal muscle increases system A amino acid transport. *Am. J. Physiol.* 260 (*Cell Physiol.* 29): C88-C95, 1991.
19. Gulve, E.A., G.D. Cartee, and J.O. Holloszy. Prolonged incubation of skeletal muscle in vitro: Prevention of increases in glucose transport. *Am. J. Physiol.* 261 (*Cell Physiol.* 30): C154-C160, 1991.
20. Holloszy, J.O., M. Chen, G.D. Cartee, and J.C. Young. Atrophy of skeletal muscle in old rats: Differential changes in the three fiber types. *Mech. Aging Develop.* 60: 199-213, 1991.
21. Ren, J., E.A. Gulve, G.D. Cartee, and J.O. Holloszy. Hypoxia causes glycogenolysis without an increase in percentage phosphorylase a in rat skeletal muscle. *Am. J. Physiol.* 263 (*Endocrinol. Metab.* 26): E1086-E1091, 1992.
22. Cartee, G.D., C. Briggs-Tung, and J.O. Holloszy. Diverse effects of calcium channel blockers on skeletal muscle glucose transport. *Am. J. Physiol.* 263 (*Regulatory Integrative Comp. Physiol.* 32): R70-R75, 1992.
23. Cartee, G.D. Age-related decline in myocardial GLUT-4 glucose transporter protein levels of rats. *J. Geront.: Biol. Sci.* 48: B168-B170, 1993.
24. Cartee, G.D., C. Briggs-Tung, and E.W. Kietzke. Persistent effect of exercise on glucose transport across the lifespan. *J. Appl. Physiol.* 75(2): 972-978, 1993.
25. Stanley, W.C., J.L. Hall, K.R. Smith, G.D. Cartee, T.A. Hacker, and J.A. Wisneski. Myocardial glucose transporters and glycolytic metabolism in hyperglycemic diabetic swine. *Metabolism.* 43 (1): 61-69, 1994.
26. Hall, J.L., R.S. Mazzeo, D.A. Podolin, G.D. Cartee, and W.C. Stanley. Exercise training does not compensate for an age-related decrease in myocardial GLUT-4 concentration. *J. Appl. Physiol.* 76(1): 104-111, 1994.
27. Cartee, G.D., E.W. Kietzke, and C. Briggs-Tung. Adaptation of muscle glucose transport with caloric restriction in adult, middle-aged and old rats. *Am. J. Physiol.* 266 (*Regulatory Integrative Comp. Physiol.* 35): R1443-R1447, 1994.

28. Cartee, G.D. and D.J. Dean. Glucose transport with brief dietary restriction: Heterogenous responses in muscles. *Am. J. Physiol.* 266 (*Endocrinol. Metab.* 29): E946-E952, 1994.
29. Cartee, G.D. What insights into age-related changes in skeletal muscle are provided by animal models? *J. Geront.: Biol. Sci.* 50: 137-141, 1995.
30. Cartee, G.D. and E.E. Bohn. Growth hormone reduces glucose transport but not GLUT1 or GLUT4 in adult and old rats. *Am. J. Physiol.* 268 (*Endocrinol. Metab.* 31): E902-E909, 1995.
31. Cartee, G.D., E.E. Bohn, B.T. Gibson, and R.P. Farrar. Growth hormone supplementation increases skeletal muscle mass of old male Fischer 344/Brown Norway rats. *J. Geront.: Biol. Sci.* 51A (3): B214-B219, 1996.
32. Dean, D.J. and G.D. Cartee. Brief dietary restriction increases skeletal muscle glucose transport in old Fischer 344 rats. *J. Geront.: Biol. Sci.* 51A (3): B209-B213, 1996.
33. Kohles, S.S., G.D. Cartee and R. Vanderby, Jr. Cortical elasticity in aging rats with and without growth hormone treatments. *J. Med. Engineering Tech.* 20: 157-163, 1996.
34. Cartee, G.D., T.J. Wetter, A.N. Guerra and T.N. Cox. Decline in muscle insulin-dependent and -independent glucose uptake but not GLUT-4 in 21- vs. 28-day-old rats. *Am. J. Physiol. (Endocrinol. Metab.* 29). 272: E446-E452, 1997.
35. Ranheim, T., Dumke, C., Schueler, K.L, Cartee, G.D., and Attie, A.D. Interaction between BTBR and C57BL/6J genomes produces an insulin resistance syndrome in (BTBR x C57BL/6J) F1 mice. *Arterioscler. Thromb. Vasc. Biol.* 17(11): 3286-3293, 1997.
36. Dean, D.J., A.C. Gazdag, T.J. Wetter, and G.D. Cartee. Comparison of the effects of 20 days and 15 months of calorie restriction on male Fischer 344 rats. *Aging: Clin. Exper. Res.* 10(4): 303-307, 1998.
37. Dean, D.J., J.T. Brozinick, Jr., S.W. Cushman, and G.D. Cartee. Calorie restriction increases cell surface GLUT4 in insulin-stimulated skeletal muscle. *Am. J. Physiol. (Endocrinol. Metab.* 38). 275: E957-E964, 1998.
38. Gazdag, A.C., M.Z. Tucker, L.P. Turcotte, D.J. Dean, and G.D. Cartee. Effect of extracellular palmitate on 2-deoxy-D-glucose uptake in muscles from ad libitum fed and calorie restricted rats. *Biochem. Biophys. Res. Comm.* 252: 733-737, 1998.
39. Brozinick, Jr., J.T., T.H. Reynolds, D.J. Dean, G.D. Cartee, and S.W. Cushman. KN-62, an inhibitor of calcium dependent calmodulin kinase II, inhibits both insulin and hypoxia-stimulated glucose transport in skeletal muscle. *Biochem. J.* 339(Part 3): 533-540, 1999.
40. Wetter, T.J., A.C. Gazdag, D.J. Dean, and G.D. Cartee. Effect of calorie restriction on *in vivo* glucose metabolism by individual tissues in rats. *Am. J. Physiol. (Endocrinol. Metab.* 39). 276: E728-E738, 1999.
41. Gazdag, A.C., C.L. Dumke, C.R. Kahn, and G.D. Cartee. Calorie restriction increases insulin stimulated glucose transport in skeletal muscle from IRS-1 knockout mice. *Diabetes.* 48:1930-1936, 1999.
42. Gazdag, A.C., S. Sullivan, J.W. Kemnitz, and G.D. Cartee. Effect of long-term calorie restriction on GLUT4, phosphatidylinositol-3 kinase p85 subunit, and insulin receptor substrate-1 protein levels in rhesus monkey skeletal muscle. *J. Geront.: Biol. Sci.* 55A: 44-46, 2000.
43. Gazdag, A.C., T.J. Wetter, R.T. Davidson, K.A. Robinson, M.G. Buse, A.J. Yee, L.P. Turcotte, and G.D. Cartee. Lower calorie intake enhances muscle insulin action and reduces hexosamine levels. *Am. J. Physiol. Regulatory, Integrative Comp. Physiol.* 278: R504-R512, 2000.
44. Dean, D.J. and G.D. Cartee. Calorie restriction increases insulin-stimulated tyrosine phosphorylation of insulin receptor and insulin receptor substrate-1 in rat skeletal muscle. *Acta Physiol. Scand.* 169: 133-140, 2000.
45. Dumke, C.L., J.S. Rhodes, T. Garland, Jr., E. Maslowski, J.G. Swallow, A.C. Gazdag, and G.D. Cartee. Genetic selection of mice for high voluntary wheel-running: Effect on skeletal muscle glucose uptake. *J. Appl. Physiol.* 91: 1289-1297, 2001.

46. Arias, E.B., L.E. Gosselin, and G.D. Cartee. Exercise training eliminates age-related differences in skeletal muscle insulin receptor and IRS-1 abundance in rats. *J. Geront.: Biol. Sci.* 56A: B1-B7, 2001.
47. Dumke, C.L., A.C. Wetter, E.B. Arias, C.R. Kahn, and G.D. Cartee. Absence of insulin receptor substrate-1 expression does not alter GLUT1 or GLUT4 abundance or contraction-stimulated glucose uptake by mouse skeletal muscle. *Hormone Metab. Research.* 33: 696-700, 2001.
48. Davidson, R.T., E.B. Arias, and G.D. Cartee. Calorie restriction increases muscle insulin action, but not IRS-1-, IRS-2- or phosphotyrosine-PI3-kinase. *Am. J. Physiol. Endocrinol. Metab.* 282: E270-E276, 2002.
49. Dumke, C.L., J. Kim, E.B. Arias, and G.D. Cartee. Role of kallikrein-kininogen system in insulin-stimulated glucose transport after muscle contractions. *J. Appl. Physiol.* 92: 657-664, 2002.
50. Chapman, J., A.W. Garvin, A. Ward, G.D. Cartee. Unaltered insulin sensitivity after resistance exercise bout by postmenopausal women. *Med. Sci. Sports Exerc.* 34:936-941, 2002.
51. Al-Khalili, L., G.D. Cartee, and A. Krook. RNA interference-mediated reduction in GLUT1 inhibits serum-induced glucose transport in primary human skeletal muscle cells. *Biochem. Biophys. Res. Comm.* 307: 127-132, 2003.
52. McCurdy, C.E., R.T. Davidson, and G.D. Cartee. Brief calorie restriction increases Akt2 phosphorylation in insulin-stimulated rat skeletal muscle. *Am. J. Physiol.(Endocrinol. Metab.)* 285: E693-E700, 2003.
53. Kim, J., R.S. Solis, E.B. Arias, and G.D. Cartee. Post-contraction insulin sensitivity: Relationship with contraction protocol, glycogen concentration and 5'AMP-activated protein kinase phosphorylation. *J. Appl. Physiol.* 96: 575-583, 2004.
54. Arias, E.B., J. Kim, and G.D. Cartee. Prolonged incubation in PUGNAC results in increased protein O-linked glycosylation and insulin resistance in rat skeletal muscle. *Diabetes.* 53: 921-930, 2004.
55. Al-Khalili, L., A. Krook, J.R. Zierath, and G.D. Cartee. Prior serum and AICAR-induced AMPK activation in primary human myocytes does not lead to subsequent increase insulin-stimulated glucose uptake. *Am. J. Physiol.(Endocrinol. Metab.)*, 287: E553-E557, 2004.
56. Bruss, M.D., E.B. Arias, G.E. Lienhard, and G.D. Cartee. Increased phosphorylation of Akt substrate of 160 kDa (AS160) in rat skeletal muscle in response to insulin or contractile activity. *Diabetes.* 54: 41-50, 2005.
57. Sancho, R., J. Kim and G.D. Cartee. Decreased contraction-stimulated glucose transport in isolated epitrochlearis muscles of pregnant rats. *J. Appl. Physiol.* 98: 1021-1027, 2005.
58. McCurdy, C.E, R.T. Davidson and G.D. Cartee. Calorie restriction increases the ratio of phosphatidylinositol 3-kinase catalytic to regulatory subunits in rat skeletal muscle. *Am. J. Physiol.(Endocrinol. Metab.)*. 288: E996-E1001, 2005.
59. Arias, E.B. and G.D. Cartee. Relationship between protein O-linked glycosylation and insulin-stimulated glucose transport in rat skeletal muscle following calorie restriction or PUGNAC exposure. *Acta Physiologica Scandinavica.* 183: 281-289, 2005.
60. McCurdy, C.E. and G.D. Cartee. Akt2 is essential for the full effect of calorie restriction on insulin-stimulated glucose uptake in skeletal muscle. *Diabetes.* 54: 1349-1356, 2005.
61. Hamada, T., E.B. Arias and G.D. Cartee. Increased submaximal insulin-stimulated glucose uptake in mouse skeletal muscle after treadmill exercise. *J. Appl. Physiol.* 101: 1368-1376, 2006.
62. Kim, J., E.B. Arias and G.D. Cartee. Effects of prior swim exercise on glucose uptake in isolated skeletal muscles from mice. *J. Physiol. Sci.* 56: 305-312, 2006.
63. Arias, E.B., J. Kim, K. Funai and G.D. Cartee. Prior exercise increases Akt Substrate of 160 kDa phosphorylation in rat skeletal muscle. *Am. J. Physiol.(Endocrinol. Metab.)* 292: E1191-E1200, 2007.
64. Arias, E.B and G.D. Cartee. In vitro simulation of calorie restriction-induced decline in glucose and insulin leads to increased insulin-stimulated glucose transport in rat skeletal muscle. *Am. J. Physiol.(Endocrinol. Metab.)* 293: E1782-E1788, 2007.

Reviews and Books Chapters:

65. Cartee, G.D. Aging skeletal muscle: Response to exercise. *Exerc. Sports Sci. Rev.* 22: 91-120, 1994.
66. Cartee, G.D. Influence of age on skeletal muscle glucose transport and glycogen metabolism. *Med. Sci. Sports Exerc.* 26 (5): 577-585, 1994.
67. Cartee, G.D. Carbohydrate Metabolism. In: *The Encyclopedia of Aging: A Comprehensive Resource in Gerontology and Geriatrics*, third edition. G. Maddox, Editor-in-Chief. R.C. Atchley, J.G. Evans, R. Hudson, R. Kane, E. Masoro, M.D. Mezey, L. Poon, and I. Siegler, Associate Editors. Springer Publishing Company: New York. 2001, p. 144-145.
68. Cartee, G.D. Effects of aging on glucose homeostasis: Cellular approaches. In: *Muscle Metabolism. Frontiers in Animal Diabetes Research*. H. Wallberg-Henriksson and J.R. Zierath, Editors. Taylor & Francis, New York, pp 373-391, 2002.
69. Cartee, G.D. and J.F. Wojtaszewski. Role of Akt Substrate of 160 kDa in insulin-stimulated and contraction-stimulated glucose transport. *Appl. Physiol, Nutr. Metab.* 32: 557-556, 2007.
70. Cartee, G.D. Exercise and calorie restriction use different mechanisms to improve insulin sensitivity. In: *Physical Activity and Type 2 Diabetes: Therapeutic Effects and Mechanisms of Action*. J.A. Hawley and J.R. Zierath, Editors. Human Kinetics. In Press.

ABSTRACTS:

1. Haymes, E.M., G.D. Cartee, S.M. Rape, E.S. Garcia and T.E. Temples. Thermal and metabolic responses of men and women during exercise in cold and neutral environments. *Med. Sci. Sports Exerc.* 14(2) Supplement: 126, 1982.
2. Cartee, C.S. Johnston, C.M. Ardies, G.S. Morris and R.P. Farrar. The effects of endurance training and chronic ethanol ingestion on skeletal muscle carnitine in rats. *Med. Sci. Sports Exerc.* 15(2) Supplement: 127, 1983.
3. Cartee, G.D., C.S. Johnston and B.E. Haskell. Effect of graded doses of ascorbic acid on muscle carnitine in the guinea pig. *Fed. Proc.* 43:4324, 1984.
4. Farrar, R.P., G.D. Cartee, C. Johnston and W.W. Spirduso. The interaction of aging and exercise upon skeletal muscle enzyme activity and carnitine content. *Fed. Proc.* 43:890, 1984.
5. Johnston, C.S., G.D. Cartee and B.E. Haskell. Effect of ascorbic acid nutriture on plasma C1Q levels in the guinea pig. *Fed. Proc.* 43: 890, 1984.
6. Wilcox, R.E., M.Limb, J.A. Severson, G.D. Cartee, W.W. Spirduso, J. Fineg and R.P. Farrar. Beta norepinephrine receptors in sensorymotor cortex of the Fischer 344 rat: Changes as a function of age and chronic cardiovascular exercise. *Soc. Neurosci. Abstracts.* 11:728, 1985.
7. Farrar, R.P., T.J. Walters, G.D. Cartee and H.L. Sweeney. Interaction of aging and endurance exercise upon skeletal muscle of predominantly different fiber types. *Soc. Neurosci. Abstracts.* 11:732, 1985.
8. Farrar, R.P., G.D. Cartee, T.J. Walters and C. Seibert. The effect of chronic ethanol consumption upon maximum whole body oxygen consumption. *Pharmacologist.* 27, 1985.
9. Cartee, G.D. and R.P. Farrar. An endurance running program reverses the age-related decline in peak oxygen consumption. *Fed. Proc.* 45:402, 1986.
10. Cartee, G.D. and R.P. Farrar. The effect of an identical endurance training protocol on glycogen utilization during exercise by young and old rats. *Med. Sci. Sports Exerc.* 18(2) Supplement 2:S52, 1986.
11. Farrar, R.P., T.J. Walters, G.D. Cartee and H.L. Sweeney. Declines in peak oxygen consumption due to both aging and chronic ethanol consumption. *Fed. Proc.* 45:570, 1986.
12. Cartee, G.D., D.A. Young, M.D. Sleeper, J. Zierath, H. Wallberg-Henriksson and J.O. Holloszy. Carbohydrate feeding speeds reversal of enhanced muscle insulin sensitivity after exercise. *Med. Sci. Sports Exerc.* 20(2) Supplement: S45, 1988.
13. Gulve, E.A., G.D. Cartee and J.O. Holloszy. In vitro measurement of exercise-induced glucose transport: roles of insulin and glucose. *Med. Sci. Sports Exerc.* 20(2) Supplement: S29, 1988.

14. Kanter, M.M., G.D. Cartee, M.M. Chen and J.O. Holloszy. The effects of exercise and dietary manipulation on catalase activity and muscle mass of aging rats. *Med. Sci. Sports Exerc.* 20(2) Supplement 2:S63, 1988.
15. Douen, A.G., T. Ramlal, A. Klip, D. Young, G.D. Cartee and J.O. Holloszy. Exercise induces recruitment of glucose transporters to the plasma membrane from an insulin-independent intracellular site. *Soc. General Physiol. Abstracts.* 1988.
16. Cartee, G.D. and J.O. Holloszy. Effect of hypoxia on glucose transport in rat epitrochlearis muscle. *FASEB J.* 3:540A, 1989.
17. Cartee, G.D. and J.O. Holloszy. Persistent enhancement of vanadate and hydrogen peroxide stimulated glucose transport in muscle following exercise. *Med. Sci. Sports Exerc.* 21(2) Supplement 2: S29, 1989.
18. Cartee, G.D. and J.O. Holloszy. Prior exercise increases susceptibility of muscle glucose transport for insulin-independent activation. *Med. Sci. Sports Exerc.* 22(4) Supplement: S39, 1990.
19. Gulve, E.A., G.D. Cartee and J.O. Holloszy. The effects of prolonged incubation of rat epitrochlearis muscles on basal and insulin-stimulated MeAIB transport. *Diabetes.* 39 (Supplement 1):148A, 1990.
20. Klip, A., T. Ramlal, D. Dimitrakoudis, P.J. Bilan, G. Cartee, E. Gulve, J.O. Holloszy. The subcellular distribution of glucose transporters (GTS) in normal and diabetic rat skeletal muscle is regulated by hyperglycemia and insulin. *Endocrine Soc.*, Abstract #89, p 47, 1990.
21. Cartee, G.D. and J.O. Holloszy. Divergence of vanadate and insulin action in isolated rat epitrochlearis muscle. *Diabetes.* 40 (Supplement): 183A, 1991.
22. Cartee, G.D., C. Briggs-Tung, and J.O. Holloszy. Inhibition of glucose transport by verapamil is not a stereoselective property of the drug or limited to insulin-stimulated glucose transport. *FASEB J.* 5: A1745, 1991.
23. Gulve, E.A., G.D. Cartee, K.J. Rodnick and J.O. Holloszy. Prolonged incubation of skeletal muscle in vitro enhances insulin-stimulated, but not hypoxia-stimulated glucose transport. *Diabetes.* 40(Supplement): 23A, 1991.
24. Ren, J.M., E.A. Gulve, G.D. Cartee and J.O. Holloszy. Muscle hypoxia causes glycogen breakdown without phosphorylase b to a transformation. *Med. Sci. Sports Exerc.* 23(4) Supplement 4: S153, 1991.
25. Cartee, G.D., C.A. Briggs-Tung, and E.W. Kietzke. Glucose transport activity after exercise in young, adult and old rats. *Am. Physiol. Soc. Conference: Integrative Biol. Exerc.* 1992.
26. Hall, J.L., G.D. Cartee, K.R. Smith, and W.C. Stanley. Myocardial glucose transporter content is decreased in diabetic swine. *Am. Heart Assoc.* 1992.
27. Cartee, G.D., E.W. Kietzke, J-P. Motamedi, and C.A. Briggs-Tung. Adaptive response of muscle glucose and amino acid transport to fasting in adult and old rats. *FASEB J.* 7: A392, 1993.
28. Hall, J.L., D.A. Podolin, G.D. Cartee, W.C. Stanley, R.S. Mazzeo. Exercise training does not compensate for an age-related decrease in myocardial GLUT 4 concentration. *Med. Sci. Sports Exerc.* 25(5) Supplement: S143, 1993.
29. Hall, J.L., T.A. Hacker, G.D. Cartee, and W.C. Stanley. Myocardial GLUT 4 concentration is reduced in Yucatan miniswine with 3 months of diabetes. *FASEB J.* 7: A846, 1993.
30. Bohn, E.E., N.L. Nucatola, M.W. Mathisen, and G.D. Cartee. Influence of age on growth-promoting and metabolic effects of growth hormone in rats. *Med. Sci. Sports Exerc.* 26(5) Supplement:S135, 1994.
31. Dean, D.J., E.G. Heberlein, and G.D. Cartee. No effect of indomethacin on the exercise-induced increase in insulin-stimulated glucose transport. *Med. Sci. Sports Exerc.* 27 (5) Supplement 5: S214, 1995.
32. Wetter, T.J., D.J. Dean, and G.D. Cartee. Insulin- and hypoxia-stimulated muscle glucose transport: Developmental adaptation. *Med. Sci. Sports Exerc.* 27(5) Supplement: 215, 1995.
33. B. Gibson, H. Park, E.E. Bohn, G.D. Cartee, and R.P. Farrar. Effects of administration of growth hormone on histochemistry and biochemistry of skeletal muscle across different ages. *FASEB J.* 9 (4): A657, 1995.

34. Dean, D.J., C. Smith, M. Huiting, and G.D. Cartee. Glycogen levels are increased in some muscles of calorie restricted rats: Implications for exercise and weight loss. *Med. Sci. Sports Exerc.* 28(5) Supplement: 42, 1996.
35. Wetter, T.J., A.N. Guerra, and G.D. Cartee. The age-related decline in muscle glucose transport occurs despite no decline in GLUT-4. *Med. Sci. Sports Exerc.* 28 (5) Supplement: 97, 1996.
36. Ranheim, T., C. Dumke, K.L. Schueler, G.D. Cartee, and A.D. Attie. A mouse genetic model of diet-induced insulin resistance. *Diabetes.* 45(Supplement 2): 293A, 1996.
37. Kohles, S.S., G.D. Cartee and R. Vanderby, Jr. Cortical elasticity in aging rats with and without growth hormone treatments. *Proc. Am. Soc. Biomechanics*, 1996.
38. Dean, D.J. and G.D. Cartee. Calorie restriction modifies the insulin signalling system of skeletal muscle. *Diabetes.* 45(Supplement 2): 103A, 1996.
39. Dean, D., J. Brozinick, T. Reynolds, S.W. Cushman, and G.D. Cartee. Calorie restriction increases skeletal muscle cell surface GLUT4 content and insulin signalling activity. *Diabetes.* 46(Supplement 1): 257A, 1997.
40. Gresl, T., G. Cartee, A. Gazdag, E. Roecker, R. Colman, S. Baum, L. Mason and J. Kemnitz. Dietary restriction protects against the development of type 2 diabetes in rhesus monkeys. *FASEB J.* 12 (4): A254, 1998.
41. Wetter, T.J., A.C. Gazdag, D. Dean, and G.D. Cartee. Effects of chronic calorie restriction on glucose utilization in rats. *FASEB J.* 12 (4): A255, 1998.
42. Gazdag, A.C., C.L. Dumke, C.R. Kahn and G.D. Cartee. Decreased insulin-stimulated glucose transport in skeletal muscle of adult, but not young, IRS-1 (+/-) mice. *FASEB J.* 12 (4): A257, 1998.
43. Tucker, M.Z., G.D. Cartee, A.C. Gazdag, D.J. Dean, and L.P. Turcotte. FABP_{PM} content decreases with 20 day caloric restriction in muscle of young Fischer 344 rats. *Med. Sci. Sports Exerc.* 30 (5) Supplement: 137, 1998.
44. Dumke, C.L., A.C. Gazdag, C.R. Kahn, and G.D. Cartee. Contraction-induced glucose transport and glycogen depletion in muscles from mice heterozygous for IRS-1 protein. *Med. Sci. Sports Exerc.* 30 (5) Supplement: S246, 1998.
45. Gazdag, A.C., C.L. Dumke, C.R. Kahn, and G.D. Cartee. Insulin sensitizing effect of calorie restriction on skeletal muscle glucose transport is undiminished in IRS-1 deficient mice. *FASEB J.* 13(4): A54, 1999.
46. Dumke, C.L., J.G. Swallow, J.S. Rhodes, T. Garland, E. Maslowski, A.C. Gazdag, and G.D. Cartee. Effects of genetic selection and voluntary wheel running on glucose transport in mice. *Med. Sci. Sports Exerc.* 31(5) Supplement: S127, 1999.
47. Davidson, R.T., E.B. Arias, and G.D. Cartee. Use of longitudinally-split epitrochlearis muscle for glucose transport determination in the adult rat. *FASEB J.* 14(4):A90, 2000.
48. Dumke, C.L., A.C. Gazdag, K. Fechner, Y. Park, M.W. Pariza, and G.D. Cartee. Skeletal muscle glucose transport in conjugated linoleic acid (CLA) fed mice. *Med. Sci. Sports Exerc.* 32(5) Supplement: S226, 2000.
49. Davidson, R.T., E.B. Arias, J. Kim, and G.D. Cartee. Dietary restriction induces enhanced insulin-stimulated glucose transport in skeletal muscle without altering IRS-1 and IRS-2 associated PI3-kinase activity. *FASEB J.* 15(5):A752, 2001.
50. Arias, E.B., L.E. Gosselin, and G.D. Cartee. Effects of age and exercise training on insulin signaling protein levels in skeletal muscle. *Med. Sci. Sports Exerc.* 33(5) Supplement 1: S68, 2001.
51. Dumke, C.L., J.G. Swallow, J.S. Rhodes, T. Garland, E. Maslowski, A.C. Gazdag, and G.D. Cartee. Possible role for kallikrein-kininogen system in the increase in insulin sensitivity after muscle contractions. *Med. Sci. Sports Exerc.* 33(5) Supplement 1: S3, 2001.
52. Chapman, J., A. Garvin, A. Ward, and G.D. Cartee. Effect of acute resistance exercise on insulin sensitivity in untrained postmenopausal women. *Med. Sci. Sports Exerc.* 33(5) Supplement 1: S290, 2001.

53. Kim, J., E.B. Arias, R.M. Sancho-Solis, and G.D. Cartee. Dose response for post-contraction increase in insulin-stimulated glucose transport of skeletal muscle. *Med. Sci. Sports Exerc.* 34(5) Supplement 1: S283, 2002.
54. Cartee, G.D., C.E. McCurdy, R.T. Davidson, and E.B. Arias. Brief calorie restriction leads to enhanced insulin signaling in skeletal muscle. *The Purina Pet Institute Symposium: Advancing Life through Diet Restriction.* p65, 2002.
55. Kim, J., R.S. Solis, and G.D. Cartee. The role of glycogen and 5'AMP-activated protein kinase in post-contraction insulin-stimulated glucose transport. *Med. Sci. Sports Exerc.* 35(5) Supplement 1: S148, 2003.
56. McCurdy, C.E., R.T. Davidson, and G.D. Cartee. Brief calorie restriction increases insulin-stimulated phosphorylation of Akt2, but not Akt1. *Diabetes.* 52 (Supplement 1): A308, 2003.
57. Kim, J., E.B. Arias, and G.D. Cartee. Effects of gender and prior exercise on glucose transport in isolated skeletal muscle from mice. *Med. Sci. Sports Exerc.* 36(5) Supplement: S327, 2004.
58. Solis, R.S., J. Kim, and G.D. Cartee. The effect of pregnancy on tension development by electrically stimulated rat epitrochlearis muscles. *Med. Sci. Sports Exerc.* 36(5) Supplement: S34, 2004.
59. Ward, A., L. Sanborn, C. Burt, and G. Cartee. Physical activity and physical fitness levels of breast cancer survivors. *Med. Sci. Sports Exerc.* 36(5) Supplement: S98, 2004.
60. McCurdy, C.E., R.T. Davidson, and G.D. Cartee. Calorie restriction alters the molecular balance of phosphoinositide 3-kinase regulatory and catalytic subunits in rat skeletal muscle. *FASEB J.* 18: Abstract #4563, 2004.
61. McCurdy, C.E., M.J. Birnbaum, and G.D. Cartee. Akt2 plays a key role in the calorie restriction-induced improvement in insulin-stimulated glucose uptake by skeletal muscle. *Diabetes.* 53 (Suppl. 2): A304, 2004.
62. Bruss, M.D., E.B. Arias, G.E. Lienhard, and G.D. Cartee. Insulin stimulates the phosphorylation of Akt substrate of 160kD (AS160) in rat skeletal muscle. *Diabetes.* 53(Supplement 2): A325, 2004.
63. Arias, E.B., M.D. Bruss, G.E. Lienhard, and G.D. Cartee. Effect of insulin or in vitro contraction on AS160 phosphorylation in rat skeletal muscle. *Med. Sci. Sports Exerc.* 37(5) Supplement: S204, 2005.
64. Hamada, T., E.B. Arias, R.E. Odzark, and G.D. Cartee. Increased submaximal insulin-stimulated glucose uptake in mouse skeletal muscles post-exercise." *Diabetes.* 55 (Supplement 1): A235, 2006.
65. Funai, K., J. Kim, E.B. Arias, and G.D. Cartee. Effects of prior exercise on insulin-stimulated AS160 phosphorylation and glucose transport in rat skeletal muscle. *Med. Sci. Sports Exerc.* 38 (11: Supplement 1): S8, November, 2006.
66. Arias, E.B. and G.D. Cartee. Prolonged incubation of isolated rat skeletal muscle under conditions of simulated calorie restriction (reduced glucose and insulin) induces increased insulin-stimulated glucose transport. *Diabetes.* 56 (Supplement 1): A661, 2007.