

CURRICULUM VITAE

Sandra A. Billinger, PT, PhD, FAHA

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Department of Physical Therapy and Rehabilitation Science
University of Kansas Medical Center

Education

University of Kansas Medical Center, KC, KS	2002-2008	Rehab. Science	PhD	2008
University of Kansas Medical Center, KC, KS	2002-2004	Physical Therapy	MS	2004
Fort Hays State University, Hays, KS	1997-2002	Physical Education	BS	2002

Licensure Information/Registration Number

Physical Therapy, State of Kansas, #PT 1103411, 2004 – present

Certifications

American College of Sports Medicine Certified Clinical Exercise Specialist #4248 2003-present

Employment and Positions Held

Director, REACH Laboratory	Univ. Kansas Med Center, KC, KS	2010-present
Asst Professor	Univ. Kansas Med Center, KC, KS	2010-present
Research Asst Professor	Univ. Kansas Med Center, KC, KS	2009-2010
Clinical Instructor	Univ. Kansas Med Center, KC, KS	2008-2009
PRN Physical Therapist	SummitCare, Inc.	2007-present
PRN Physical Therapist	Aegis Therapies	2008-2005
Staff Physical Therapist	Meadowbrook Rehab. Hosp. Gardner, KS	2004-2006
Stroke Dynamics Consulting	Owner	2002-present
Program Manger/Research Assist.	Fort Hays State Univ., Hays, KS	2000-2002

Peer Reviewed Publications

Billinger SA, Taylor JM, Quaney BM. Cardiopulmonary Response to Exercise Testing in People with Chronic Stroke: A Retrospective Study. *Stroke Research and Treatment*. In press for Special Issue: Stroke: Physical Fitness, Exercise and Fatigue.

Billinger SA, Vidoni ED, Honea RA, Burns JM. Cardiorespiratory Response to Exercise Testing in Individuals with Alzheimer's Disease. In press. *Archives of Physical Medicine and Rehabilitation*.

Vidoni EV, **Billinger SA**, Lee C, Hamilton J and Burns, JM. Physical Performance Test Is Associated with Cardiorespiratory Fitness Decline in Early Alzheimer's Disease, in press, *Journal of Geriatric Physical Therapy*

Billinger SA, Coughenour E, MacKay-Lyons MJ, Ivey FM. Reduced Cardiorespiratory Fitness After Stroke: Biological Consequences and Exercise-Induced Adaptations. *Stroke Research and Treatment*. Special Issue: Stroke: Physical Fitness, Exercise and Fatigue. 2012. PMID 21876848

Vidoni ED, Honea RA, **Billinger SA**, Swerdlow RH, Burns JM. Cardiorespiratory Fitness is Associated with Atrophy in Alzheimer's and Aging Over 2 Years. *Neurobiology of Aging*. 2011. Epub ahead of print.

PMID 21531480.

Yuen WK, Schreiner SR, Hoover DL, Loudon JK, **Billinger SA**. Does the Friel Anaerobic Threshold Test Accurately Detect Heart Rate Deflection in Trained Cyclists? *International Journal of Exercise Science*. 2011; 4(3).

Tseng BY, **Billinger SA**, Gajewski BJ and Kluding PM. Exercise and Executive Function in Individuals with Chronic Stroke: A Pilot Study, *Journal of Neurologic Physical Therapy*. 2011; 35(1): 11-17. PMID 21475079

Billinger SA. The Importance of Exercise Training for Cardiorespiratory Fitness Post-Stroke. Invited Editorial. *International Journal of Therapy and Rehabilitation*. 2010. 17(10): 516-7.

Tseng BY, **Billinger SA**, Gajewski BJ and Kluding PM. Exertion Fatigue and Chronic Fatigue Are Two Distinct Constructs in People Post-Stroke. *Stroke*, 41(12): 2908-12. PMID: 20947841.

Billinger SA. Examining Cardiorespiratory Fitness and the Importance for Exercise Training Post-Stroke. *International Journal of Therapy and Rehabilitation*, 2010. 17(10): 516-7.

Miller E, Murray L, Richards L, Zorowitz R, Bakas T, Clark P, **Billinger S**. A Comprehensive Overview of Nursing and Interdisciplinary Rehabilitation Care of the Stroke Patient. 2010, *Stroke*. 41(10):2402-48. PMID: 20813995

Billinger SA, Guo LX, Pohl PS and Kluding PM. Single Limb Exercise: The Physiological and Functional Responses to Encouraged Use in the Hemiparetic Lower Extremity. 2010 *Topics in Stroke Rehabilitation*, 17:128-139.

Billinger, SA, Gajewski, BJ Guo, LX, and Kluding, PM. Single Limb Exercise Induces Femoral Artery Remodeling and Improves Blood Flow in the Hemiparetic Leg Post-Stroke 2009. *Stroke*, 40:3086-90.

Billinger, SA and Kluding, PM. Use of Doppler Ultrasound to Assess Femoral Artery Adaptations in the Hemiparetic Limb in Chronic Stroke, 2009. *Cerebrovascular Disease*, 27:552-8.

Billinger, SA, Kluding, PM, and Tseng, BY. Modified Total Body Recumbent Stepper Exercise Test (mTBRS-XT) to Obtain VO₂ Peak in People With Chronic Stroke, 2008. *Physical Therapy*, 88(10): 1188-1195.

Billinger, SA, Loudon, JK, and Gajewski, B. Validity of a Recumbent Stepper for Obtaining Maximal Oxygen Consumption. *Journal of Strength and Conditioning Research*, 2008 22(5): 1556-1562.

Kluding P, and **Billinger S**. Exercise-Induced Changes of the Upper Extremity in Chronic Stroke Survivors. *Topics in Stroke Rehabilitation*, 2005; 12(1): 58-68.

Non-Peer Reviewed Articles

Billinger, S. "Physical Fitness and the Stroke Survivor." *Functional U*. vol. 1(3), June 2003; p. 5-13.

Billinger, SA. "The NuStep cross trainer may help elevate cardiorespiratory fitness after stroke. *Advance for Directors in Rehabilitation* 2006.

Billinger, S.A. "New Exercise Options in Kansas," *Stroke Connection Magazine*, July/August 2001.

Billinger, S.A. "Fort Hays Program Changes Lives," 2001. *Kansas Connections for Rural Health Education and Services* 9(1).

Peer Reviewed Scientific and Professional Presentations (Abstracts not published)

Billinger SA, Lentz A, Fajewski BJ, Pohl, PS. Gender Does Not Predict Discharge Functional Independence Measure after Stroke. Poster Presentation, International Stroke Conference, February 2011.

Billinger SA. Cardiopulmonary and Vascular Regulation: The Implications for Stroke Rehabilitation, invited platform presentation, Kansas Physical Therapy Association, October, 2010.

Billinger SA. Measuring and Improving Cardiovascular Health in People Post-stroke, Invited Platform, Stroke Special Interest Group, Neurology Section of the APTA, February, 2010.

Billinger SA. Assessing and Improving Cardiovascular Health through Exercise in People Post-stroke, Physical Activity: Benefits and Mechanisms, Invited Platform, Florey Institute, Melbourne, Australia, November 2009.

Billinger SA. Future Trends in Stroke Rehabilitation, American Heart Association, 12th Annual Stroke Symposium, Kansas City, MO, October 2009.

Schreiner SR, Yuen WK, Hoover D, **Billinger SA**, and Loudon JK. Effects of Hand Position on Stationary Cycling Motor Performance during Graded Exercise Testing, Poster Presentation, American College of Sports Medicine Central States Meeting, October, 2009.

Yuen WK, Schreiner SR, **Billinger SA**, Hoover D, and Loudon JK. Validity of the Friel Anaerobic Threshold Test in Trained Cyclists, Poster Presentation, American College of Sports Medicine Central States Meeting, October, 2009.

Billinger, SA, Tseng, BY and Kluding, PM. The Effect of Single Limb Exercise Training on Femoral Artery Blood Flow in Chronic Stroke: A Case Study. Invited platform presentation, APTA Combined Sections Meeting, Neurology section, February 2008.

Macko, R, **Billinger, SA**, Rimmer, J. Exercise Prescription and Fitness Post-stroke: "Limitations with Exercise Testing and Prescription in People Post-stroke. Invited Symposium. International Stroke Conference, American Heart Association, Feb. 2007

Billinger, SA, Tseng, BY, and Kluding, PM. A Total Body Recumbent Stepper Exercise Test to Obtain VO₂ Peak in People with Stroke. Invited Platform Presentation, Student Section, ACSM Central States Meeting, Kansas City, MO, Oct 2006.

Billinger, SA. Aerobic Exercise Training in Individuals Post-Stroke. Invited Platform Presentation. AACVPR National Meeting, Charleston, WV, September 2006.

Billinger SA, Loudon JK and Gajewski B. Use of a Recumbent Stepper to Obtain Maximal Oxygen Consumption, American College of Sports Medicine, Platform Presentation, Student Section, Central States Annual Meeting, October 2005.

Billinger, S. "Neuroplasticity and Stroke Rehabilitation." Invited Speaker, Nursing and Rehab Professions Roundtable, 30th International Stroke Conference, American Stroke Association. New Orleans, LA, February 2-4, 2005.

Billinger, S. "Brain Injury: The Effects, Rehabilitation, and Exercise Retraining." Invited Platform Presentation. Central States Annual Meeting, American College of Sports Medicine. Kansas City, MO, October 1-2, 2004

Billinger, S, Gobert, D, Cho, J, Bouckhout, V. "Total Body Reciprocal Training Improves Hand Function in Chronic Stroke Survivors," Poster Presentation, American Stroke Association, 29th International Stroke Conference, San Diego, CA, February 2004.

John E, Gajewski B, Gobert D, Bouckhout V, **Billinger S,** and Cho, J. "Cardiovascular Response of Chronic Stroke Survivors to an Aerobic Exercise Training Program." Poster Presentation, Annual American College of Sports Medicine Conference, San Francisco, CA. June 2003.

Gobert D, Cho J, Bouckhout V, Kim S, **Billinger S,** Santos M, and Kapros I. "Can an Exercise Program with Total Body Reciprocal Training Improve Gait and Balance in the Chronic Stroke Survivor?" Poster Presentation, Conference of the International Society for Postural and Gait Research. Sidney, Australia. March 24, 2003.

Billinger, S, Gobert, D, Cho, J, Bouckhout, V. "Changes in Hand Function in Chronic Stroke Survivors Involved in an Intense Reciprocal Exercise Program." Poster Presentation American Physical Therapy Association Combined Sections Meeting, Tampa, FL. February 12-16 2003.

Cho, J, Gobert, D, Bouckhout, V, **Billinger, S.** "Cardiovascular Changes in Stroke Survivors in an Aerobic Exercise Program." Poster Presentation American College of Sports Medicine Central States Meeting. Embassy Suites Hotel, Kansas City, MO. October 11-12, 2002.

Peer Reviewed Scientific and Professional Presentations (Abstracts published)

Billinger, SA, Schippers, K, Nordstrom, J, and Kluding, PM. The Effect of Single Limb Exercise Training on Femoral Artery Blood Flow and Oxygen Uptake in Chronic Stroke. [abstract]. *Cardiopulmonary Physical Therapy Journal*; 19(4): 123.

Billinger, SA, Kluding, PM, and Tseng, BY. Femoral Artery Blood Flow Velocity and Diameter Changes in the Hemiparetic Limb in Chronic Stroke. [abstract]. *Stroke*; 2008: 39(2):549.

Billinger, SA, Loudon, JK, and Gajewski, B. The Validity of a Recumbent Stepper for Obtaining Maximal Oxygen Consumption. [abstract]. *Cardiopulmonary Physical Therapy Journal*; 2007: 18(4):28.

Billinger, SA, Kluding, PM, and Tseng, BY. The Effects of Single Limb Exercise Training on Femoral Artery Blood Flow in Chronic Stroke: A Case Study. [abstract]. *Journal of Neurologic Physical Therapy*; 2007: 31(4): 202.

Kluding, PM, Tseng, BY, and **Billinger, SA.** Response to Exercise in People with Both Stroke and Diabetes. [abstract]. *Diabetes*; 2007: 56(S1):A638.

Billinger, SA, Tseng, B, and Kluding, PM. Use of a Recumbent Stepper to Obtain VO₂ Peak in People with Chronic Stroke. [abstract]. *Journal of Gerontology*. December 2006.

Billinger, SA, Loudon, JK, and Gajewski, B. The Validity of a Recumbent Stepper for Obtaining Maximal Oxygen Consumption. [abstract]. *Medicine and Science in Sports and Exercise*; 2006: 38(5):S363.

Billinger SA, Cho J, Bouckhout V and Gobert DV. Total body reciprocal training improves hand function in chronic stroke survivors [abstract]. *Stroke*; 2004:35(1):287.

Billinger, S, Gobert, D, Cho, J, Bouckhout, V. "Changes in Upper Extremity Function in Chronic Stroke Survivors Involved in Total Body Reciprocal Training [abstract]. *Arch Phys Med and Rehab*. 2003; 84(10):E11.

Invited Scientific and Professional Presentations

(Abstracts not published)

Billinger SA, Colgrove Y, Sabus C, Sharma N, and VanHoose LD. Beyond SOAP Notes: Use of an Electronic Health Record System in a Case-based Curriculum to Develop Student Competencies for Contemporary Health Care Delivery, Platform Presentation, American Physical Therapy Association, February 2011.

Call E, Taylor JM and **Billinger SA**. Gender Differences in Hemodynamic and Cardiopulmonary Responses at Peak Oxygen Uptake in People with Chronic Stroke, Poster Presentation, Student Research Colloquium, Department of Physical Therapy and Rehabilitation Science, KUMC, November 2010.

Lee C, Hamilton J, **Billinger SA**, and Vidoni. The Relationship Between Physical Performance Test and Cardiorespiratory Fitness, Poster Presentation, Student Research Colloquium, Department of Physical Therapy and Rehabilitation Science, KUMC, November 2010.

Billinger, SA, Lentz A, Gajewski BJ, and Pohl PS. Gender Does Not Predict Discharge Functional Independence Measure after Stroke, Poster Presentation, Faculty Research Day and Poster Session, KUMC, November 2010.

Billinger SA. Cardiopulmonary and Vascular Regulation: The Implications for Stroke Rehabilitation. Invited Presentation, Kansas Physical Therapy Association, October 2010.

Billinger SA. Traumatic Brain Injury: Effects, Recovery and Retraining, invited presentation for Distinguished Lecture Series, Southeast Missouri State University, March 2010.

Billinger SA. Altered Cardiovascular Function after Stroke. Seminars in Physiology, sponsored by the Department of Molecular and Integrative Physiology, January 2010.

Billinger SA. Cardiorespiratory and Vascular Function after Stroke. Invited Inservice Presentation. The Rehabilitation Institute of Kansas City, December 2009.

Billinger SA. Assessing and Improving Cardiovascular Health through Exercise in People Post-stroke, Physical Activity: Benefits and Mechanisms, Invited Platform, Florey Institute, Melbourne, Australia, November 2009.

Billinger SA. Future Trends in Stroke Rehabilitation, American Heart Association, 12th Annual Stroke

Symposium, Kansas City, MO, October 2009.

Billinger, SA. The Effect of Single Limb Exercise Training on Femoral Artery Blood Flow in Chronic Stroke. KUMC Student Research Forum, Platform Presentation, April, 2008.

Billinger, SA. Use of Recumbent Stepper to Obtain VO₂ Peak in Chronic Stroke, KUMC Student Research Forum, Platform Presentation, (**Cardiovascular Biology section winner**), April, 2007.

Tseng, BY, **Billinger, SA**, and Kluding, PM. Relationship between Post-stroke Fatigue, Aerobic Fitness, Motor Control and Depression: A Pilot Study. Poster presentation. 4th Annual Capitol Graduate Research Summit, Topeka, KS, March 2007

Billinger, S. Use of Recumbent Stepper to Obtain Maximal Oxygen Consumption, KUMC Student Research Forum, Platform Presentation, (**Cardiovascular Biology section winner**), April, 2005.

Billinger, SA, "Future of Stroke Recovery Training." Invited Platform Speaker, Communicating the Message of Physical Activity to the Older Adult, sponsored by the International Council on Active Aging, Orlando, FL., December 4-6, 2003.

Billinger, S, Cho, J, Bouckhout, V, Gobert, D. "Changes in Hand Function in Chronic Stroke Survivors Involved in an Intense Reciprocal Exercise Program." Poster Presentation KUMC Student Research Forum. April 2003.

Billinger, S.A.: "Stroke Research and Wellness Programming," Invited Clinical Presentation, KU Medical Center Area Health Education Center, Professional Stroke Conference, Hays, KS, May 10, 2002.

Billinger, S.A.: "Stroke Rehabilitation and Research," Invited Presentation and Round Table Discussion, American Heart Association Regional Volunteer Recognition Conference, August 2001.

Billinger, S.A.: "Stroke Rehabilitation," Invited Presentation, Northwest Kansas Area Agency on Aging Annual Board Meeting, August 2001.

Cho, J.K., **Billinger, S.A.:** "The Effects on Aerobic Training in Chronic Stroke Survivors with Physiological, Sensory Organization, Balance, and Gait Measurements," Invited Clinical Presentation, Central States American College of Sports Medicine (ACSM) Conference, Oct 2000.

Current Grant Funding

Billinger SA (PI)

04/01/2010-12/31/2011**

Aerobic Exercise and Cardiovascular Function in Sub-Acute Stroke
Clinical Pilot Award, KUMC internal grant

This pilot project will examine the effects of aerobic exercise on cardiovascular function in people with sub-acute stroke.

**No cost extension granted until 12/2011 due to a delay in project start date.

1K01HD067318-01A1

Billinger SA (PI)

07/01/2011-06/30/2016

Examining Vascular Regulation Following Acute Stroke

This project is two-fold: 1) Examine the role of stroke severity and inflammatory markers on vascular system after stroke and 2) Determine whether an aerobic exercise program early after stroke reduces

inflammation and improves functional capacity.

Pending Grant Funding

Completed Grant Funding

Billinger SA (PI) 04/10/2010-04/01/2011

Maximizing Exercise Testing Performance in Persons with Early Alzheimer's Disease

Kansas Partners in Progress

The purpose of this study is two-fold: 1) Assess exercise test performance using a seated recumbent stepper and a treadmill in individuals with early Alzheimer's disease (AD) and 2) Use clinical assessments of balance and cognitive ability to exercise test performance.

Pohl, P (PI) and **Billinger SA (Co-I)** \$10,000.00.

The Role of Gender and Marital Status on Outcomes and Placement Following Stroke. Allied Health Research Institute, Fellowship Program.

Kluding, PM (Co-PI) and **Billinger, SA (Co-PI)** \$32,709.00

2009 Biomedical Research Equipment Fund for purchase of Doppler ultrasound, University of Kansas Medical Center.

Billinger, S. A. (P.I.) \$565.00

The Effect of Single Limb Exercise Training on Femoral Artery Blood Flow and Oxygen Uptake in Chronic Stroke, non-federal support, Kansas Partners in Progress, Inc; 2007-2008

Billinger, S. A. (P.I.) \$70,000.00

The Effect of Single Limb Exercise Training on Femoral Artery Blood Flow and Cardiorespiratory Fitness- A Pilot Study, non-federal support, equipment grant, SonoSite, Inc; 2006-2008

Grobe, H. (P.I.) \$1,915,977.00

A Randomized Exercise Trial for Wheelchair Users. NCMRR/NICHHD/NIH 5R01HD048628-04
Role: Graduate research asst.

Kluding, P (P.I.)

The Effect of Diabetes on the Benefits of Exercise after Stroke, 2006 NIDRR, H133F050006

Role: Graduate research asst.

Billinger, S. A. (P.I.) \$2,000.00

American Heart Association Student Scholarship in Cardiovascular Disease and Stroke; 2003-2004

Billinger, S. A. (P.I.) \$2,000.00

American Heart Association Student Scholarship in Cerebrovascular Disease and Stroke; 2002-2003

Cho, J (P.I.), Billinger, S. A. (Co-P.I.) \$1,250.00

Establishment of a Rural Stroke Research and Rehabilitation Center for the Improvement in Quality of Life, Northwest Kansas Area Agency on Aging

Billinger, S. A. \$7,200.00

Northwest Kansas stroke conference, "Life After Stroke: Picking Up the Pieces, with match grant from United Methodist Health Ministry Fund

Billinger, S. A. \$8,265.00

Stroke Wellness and Research Center Northwest Kansas Area Agency on Aging. 2001-2002

Billinger, S. A. \$8,265.00
Stroke Wellness and Research Center Northwest Kansas Area Agency on Aging. 2000-2001

Billinger, S. A. \$2,800.00
Northwest Kansas Area Agency on Aging for a NuStep equipment grant

Billinger, S. A. \$10,000.00
Solicited private donation of \$10,000.00 for Stroke Wellness and Research Center equipment

Continuing Education Workshops Conducted/Organized

“Exercise Is Medicine: A Prescription for Better Health.” KUMC, Kansas City, KS. Sponsorships from Rockhurst University, University of Kansas Medical Center and Central States Chapter of American College of Sports Medicine. **Billinger, SA (Chair)**

Billinger, SA. Aerobic Exercise Training in Individuals Post-Stroke. Invited Platform Presentation, sponsored by KUMC AHEC, Hays, KS September 2006.

Billinger, SA. Traumatic Brain Injury. Invited Platform Presentation, sponsored by KUMC AHEC, Hays, KS September 2006.

Billinger, S, Brown, T, and Smith, K. “Community Reintegration: A Transdisciplinary Rehab Program for Individuals with Traumatic Brain Injury.” Evidence-Based Practices: Strategies to Improve Healthcare, Hays Medical Center and Fort Hays State University, Hays, KS, May 4, 2005.

Billinger, S. “Benefits of Total Body Reciprocal Training in Physical Therapy.” Invited Platform Presentation. American Retirement Corporation, Dept of Rehabilitation. Nashville, TN, June, 2004.

Billinger, S. “Total Body Reciprocal Training Improves Hand Function in Chronic Stroke Survivors.” Invited Platform Presentation. “Evidence-Based Practice: Strategies to Improve Healthcare,” sponsored by Hays Medical Center and Fort Hays State University, Hays, KS, May 5, 2004.

Billinger, S.A.: “Stroke Research and Wellness Programming,” Invited Presentation, Betsy Johnson Hospital Rehabilitation Department, Dunn, NC, March 2002.

Billinger, S.A.: “Stroke Wellness Programs and Research,” Invited Presentation, NuStep Inc., Ann Arbor, MI, October 2001.

Membership in Scientific/Professional Organizations

1. Member/Fellow, American Heart Association, Stroke Council, 2004- present
2. Member, APTA Section Member of Cardiovascular and Pulmonary, 2008- present
3. Member, APTA Section Member of Neurology and Geriatrics, 2002- present
4. Member, Kansas Physical Therapy Association, 2002- present
5. Member, Brain Injury Association, 2004- present
6. Member, American College of Sports Medicine, 1997- present

Positions Held

University of Kansas Medical Center

Student Union Travel Award Committee Member, 2007-present

DPT Academic Review Committee (Ad-hoc), 2008

School of Allied Health Representative, Executive Committee for Women in Medicine and Science, 2010- present

Kansas Physical Therapy Association (KPTA)

Research Committee Member, 2008-present

American Physical Therapy Association (APTA)

Nominating Committee, Neurology Section 2009-2012

Invited Committee Member for the Neurology Section Strategic Planning Meeting, 2011

American Heart Association

Nursing and Rehab Professions Committee, 2010- present

Rehabilitation, Prevention and Recovery Committee, 2010- present

Nursing and Rehabilitation Professionals Committee, 2004 – 2006

Abstract Reviewer for International Stroke Conference, 2004-2007

Chairperson for Operation Stroke Committee for Ellis County 2001-2002

Operation Heartbeat Committee Member, 2000-2002

Other

Invitation by Dr. Marilyn MacKay-Lyons to participate in the development of the Canadian Best Practice Guidelines for Exercise After Stroke, Nova Scotia, CA, September 2010.

Editorial Board Member, *Journal of Neurologic Physical Therapy*, 2010-present

Reviewer, *Medicine in Science and Sports and Exercise (MSSE)*

Department of Health and Human Services, National Physical Activity Plan, Healthcare sector, Committee Member, 2009-present

Special Reviewer, *Psychological Reports, Perceptual and Motor Skills*, 2009

Special Reviewer, *Rehabilitation Nursing*, 2009

Reviewer, *Cardiopulmonary Physical Therapy Journal*, 2009

Reviewer, Scientific Statement for American Heart Association, 2009

Reviewer, *Archives of Physical Medicine and Rehabilitation*, 2008-present

Reviewer, *Topics in Stroke Rehabilitation*, 2008-present

Honors and Awards

2009-2010 U. S. Department of Health and Human Services, Health Resources and Services Administration, Faculty Loan Repayment Program for Individuals with a Disadvantaged Background, \$40,000.00

2009 Dorothy Briggs Memorial Scientific Inquiry Award (APTA, June 2009) for manuscript, Modified Total Body Recumbent Stepper Exercise Test (mTBRS-XT) to Obtain VO₂ Peak in People With Chronic Stroke, 2008. *Physical Therapy*, 88(10): 1188-1195.

2007 Bittel Family Leadership and Scholarship Award

2005, 2007 Outstanding Student Research Award, Cardiovascular Biology section, KUMC Student Research Forum

2004-present Fellow, American Heart Association (FAHA) Stroke Council

2003 Scholarship for Health Professionals from Disadvantaged Background

2003 Outstanding PT/PhD student- Dept of PT and Rehab Sciences

2001-2002 Outstanding Student Award, College of Health and Life Sciences, FHSU

2001-2002 Torch Award Nominee for Outstanding Graduating Senior, FHSU

2001,2002 Elizabeth Barbour Award for Outstanding Female in Health, Human Performance, FHSU

2000,2001 Top Fundraiser American Heart Walk, AHA, Hays, KS
2000-2002 Committee Chairperson Operation Stroke for Northwest Kansas- AHA

Current Teaching Responsibilities in the DPT entry-level program

Semester 4: PTRS 825 Exercise Physiology
Semester 5: PTRS 826 Cardiopulmonary Physical Therapy
Semester 6: PTRS 852 Neurologic Physical Therapy I, Lecture for Traumatic Brain Injury