

The Department of Kinesiology and Community Health Visioning Future Excellence at Illinois

Visioning Future Excellence at Illinois (VFE) is a campus-wide attempt to capture what challenges the world will face in the next twenty to fifty years and what role our preeminent institution will play in addressing those challenges. Twenty groups totaling over 700 people gathered for focus group sessions over the Spring 2012 semester. Represented in these groups were faculty, academic professionals, civil service staff, graduate students, undergraduate students, alumni, community members and corporate leaders.

The groups were asked to address two questions:

- What are society's most pressing issues?
- What distinctive and signature role Illinois can play in addressing those issues in the next 20 to 50 years?

At the completion of the process, six major categories, or themes, emerged from the focus group sessions, including: Health and Wellness, Economic Development, Education, Information and Technology, Energy and Environment, and Social Equality and Cultural Understanding. In the Kinesiology and Community Health department, in our own VFE retreats we have attempted to articulate how our own work interfaces with the 6 VFE themes identified by the campus. For more information about the VFE outcomes and process visit the [VFE website](#).

Health and Wellness Theme:

KCH Theme Participants: All KCH Faculty

1. Examples of how KCH faculty contributes to the Health and Wellness VFE theme:

- By exploring the role of financial incentives in changing health behaviors and outcomes **(An)**
- By exploring how demographic, epidemiological and nutritional changes influence the health and wellbeing in Latin America and the Caribbean and among Latinos in the US **(Andrade)**
- By estimating the impact of disability on healthy life expectancy **(Andrade)**
- By elucidating the molecular and cellular responses to exercise in skeletal muscle **(Boppart)**
- By defining a role for mesenchymal stem cells in muscle repair and growth **(Boppart)**
- By developing molecular- and stem cell-based strategies to prevent and treat age-related disabilities **(Boppart)**

- By validating health behavior change theories for people with disability and chronic illness **(Chiu)**
- By exploring how demographic, epidemiological and nutritional changes influence the health and wellbeing in Latin America and the Caribbean and among Latinos in the US. **(Andrade)**
- By estimating the impact of disability on healthy life expectancy. **(Andrade)**
- By defining the optimal nutritional factors (i.e., food texture, timing, amount, and source of dietary protein) to maximize the anabolic response to ingestion of food. **(Burd)**
- By increasing understanding of the pathophysiology of sarcopenia **(Burd)**
- By exploring if exercise interventions are a viable strategy to reduce healthcare costs, improve quality of life and benefit aging and obese populations. **(De Lisio)**
- By determining if exercise can be used as an adjuvant therapy for bone marrow transplantation which could potentially decrease the use of drugs and reduce hospital stays by decreasing recovery time **(De Lisio)**
- By seeking to capture complex processes in the social environment that influence diabetes and obesity risk, particularly in vulnerable populations across various stages of human development **(Grigsby - Toussaint)**
- By exploring the behavioral, social, cultural, and policy factors that influence the health of individuals, families, and communities across the lifespan **(Iwelunmor)**
- By developing undergraduate student projects that focus on one or more of the six dimensions of wellness (physical, social, intellectual, environmental, spiritual, psychological) and target older adults in the community. **(Graber)**
- By exploring how factors such as physical activity, fitness, and obesity relate to brain structure and function, cognition, and scholastic performance. These factors have been related to aspects of cognitive control, attention, and memory that impact to mental **(Hillman)**
- By studying factors that increase the risk of or prevent cancer in populations **(Rosenblatt)**
- By explore the feasibility of implementing a behavioral change program addressing physical activity, nutrition and stress management in the Latino community. **(Schwingel)**
- By investigating effects of aging, disability and sedentary lifestyle on microvascular dysfunction and by exploring the effect of physical activity on improving microvascular function **(Jan)**

- By aiming to understand the factors that contribute to exercise adherence and promote cognitive control & brain health **(Mullen)**
- By focusing on the treatment of chronic neurological disease and disability through physical activity and exercise. **(Pilutti)**
- By exploring strategies for preventing and treating a variety of lifestyle related diseases and conditions. **(Klonoff-Cohen)**
- By understanding differences in breast cancer histology in Caucasians, African-Americans, Hispanics, Asians and Pacific Islanders. **(Klonoff-Cohen)**
- By better understanding the affective responses to exercise, the relationship of such responses to exercise enjoyment and adherence, and individual differences influencing these relationships. **(Petruzzello)**
- By optimizing health, function, inclusion, and quality of life of persons with disabilities **(Rice, I.)**
- By exploring quality of life for wheelchair users affected by a variety of disabilities including the impact that secondary impairments, such as pain, spasticity, pressure sores, etc. have on the quality of life of an individual. **(Rice, L.)**
- By studying the interplay between physical activity, aging, and well-being in both healthy and chronically diseased individuals (e.g., cancer, multiple sclerosis) **(McAuley)**
- By investigating the control of movement in health and disease and various rehabilitation strategies to prevent loss of mobility in special populations **(Sosnoff)**
- Through the education of healthcare providers to improve the care they provide in rehabilitation services. **(Rice, L.)**
- By examining the interaction between disability and quality of life through the lens of employment **(Strauser)**
- By critiquing and illuminating goods and ills of physical culture in modernity including sport, play and ritual **(Sydnor)**
- By investigating the effect of exercise training and dietary modifications on co-morbidities associated with chronic renal failure **(Wilund)**
- By exploring the role of school-based physical activity positive health and wellness. **(Woods, A.)**
- By exploring the effects of physical activity, exercise and nutrition on inflammation-induced health problems in populations such as the elderly or obese **(Woods, J.)**

- By increasing understanding of physical activity and public health and issues related to physical activity assessment **(Zhu)**

2. Selected KCH Publications Related to the Health and Wellness VFE Theme:

An R. Effectiveness of subsidies in promoting healthy food purchases and consumption: a review of field experiments. *Public Health Nutrition*. 2013;16(7): 1215-1228

An R, Patel D, Segal D, Sturm R. Eating better for less: a national discount program for healthy food purchases in South Africa. *American Journal of Health Behavior*. 2013;37(1):56-61

Sturm R, **An R,** Segal D, Patel D. A cash-back rebate program for healthy food purchases in South Africa results from scanner data. *American Journal of Preventive Medicine*. 2013;44(6):567-572

Hattori A, **An R,** Sturm R. Association between neighborhood food outlets and diet and obesity among California adults. *Preventing Chronic Disease*. 2013;10:120123

Shier V, **An R,** Sturm R. Is there a robust relationship between neighborhood food environment and childhood obesity in the United States? *Public Health*. 2012;126(9):723-730

Corona, L., **Andrade, F. C. D.,** Lebrão, M. L., Duarte, Y. A. O. (in press). The association of hemoglobin concentration with disability and decreased mobility among older Brazilians. *The Journal of Nutrition Health and Aging*.

Andrade, F. C. D., Nazan, A.I.N.M., Lebrão, M. L., & Duarte, Y. A. O. (2013). Impact of Obesity and Weight Changes on Disability and Mortality in Brazilian Older Adults. *Journal of Aging and Research*. Article ID 905094, 11 pages. doi:10.1155/2013/905094

Mosley, M. A., **Andrade, F. C. D.** Aradillas-Garcia, C, Teran-Garcia, M. (2013). Consumption of Dairy and Metabolic Syndrome Risk in a Convenient Sample of Mexican College Applicants. *Food and Nutrition Sciences*, 4 (1):56-65. 10.4236/fns.2013.41009

Andrade, F. C. D., Vazquez-Vidal, I., Flood, T., Aradillas-Garcia, C., Morales, J. M.V., & Teran-Garcia, M. (2012). One-Year Follow-up Changes in Weight are related with Changes Blood Pressure in Mexican Young Adults. *Public Health*, 126, 535-540. doi:10.1016/j.puhe.2012.02.005

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- Zou K, Meador B, Johnson B, Huntsman HD, Valero MC, Huey K, **Boppard MD**. The $\alpha 7\beta 1$ integrin increases muscle fiber hypertrophy following multiple bouts of eccentric exercise. *J Appl Physiol* 111: 1134-1141, 2011.
- Valero MC, Huntsman HD, Liu J, Zou K, **Boppard MD**. Eccentric exercise facilitates mesenchymal stem cell appearance in skeletal muscle. *PLoS One*, 7(1): e29760, 2012.
- Huntsman HD, Zachwieja N, Zou K, Ripchik P, Valero MC, De Lisio M, **Boppard MD**. Mesenchymal stem cells contribute to vascular growth in skeletal muscle in response to eccentric exercise. *Am J Physiol Heart Circ Physiol* 304: H72-81, 2013.
- Burd NA**, Gorissen SH, and van Loon LJ. Anabolic resistance of muscle protein synthesis with aging. *Exerc Sport Sci Rev* 2013
- Burd NA**, Wall BT, and van Loon LJ. The curious case of anabolic resistance: old wives' tales or new fables? *J Appl Physiol* 112: 1233-1235, 2012.
- Burd NA**, Yang Y, Moore DR, Tang JE, Tarnopolsky MA, and Phillips SM. Greater stimulation of myofibrillar protein synthesis with ingestion of whey protein isolate v. micellar casein at rest and after resistance exercise in elderly men. *Br J Nutr* 108: 958-962, 2012.
- Yang Y, Breen L, **Burd NA**, Hector AJ, Churchward-Venne TA, Josse AR, Tarnopolsky MA, and Phillips SM. Resistance exercise enhances myofibrillar protein synthesis with graded intakes of whey protein in older men. *Br J Nutr* 108: 1780-1788, 2012.
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- Chiu, C. Y.**, Fitzgerald., S.D., Strand, D.M., Muller, V., Brooks, J., & Chan, F. (2012). Motivational and volitional associated with stages of change for exercise in multiple sclerosis: A multiple discriminant analysis. *Rehabilitation Counseling Bulletin*. doi:10.1177/0034355212439898
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Airhihenbuwa, C. O., & **Iwelunmor**, J. (2010). Freedom to Make Choices for Health: Plus 40 Years. *American Journal of Health Education*, 41(6), 326-328.

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“Soy protein diet and exercise training increase relative bone volume and enhance bone microarchitecture in a mouse model of uremia.” Tomayko EJ, Chung HR, **Wilund KR**. *J Bone Miner Metab.* 2011 Nov; 29(6): 682-90.

“Intradialytic Exercise Training Reduces Oxidative Stress and Epicardial Fat: A Pilot Study.” **Wilund KR**, Tomayko EJ, Wu PT, Chung HR, Vallurupalli S, Lakshminarayanan B, and Fernhall B. *Nephrology, Dialysis and Transplantation.* 2010 Aug; 25 (8): 2695-701.

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Zhu, W., Timm, G., & Ainsworth, B.A. (2001). Rasch calibration and optimal categorization of an instrument measuring women's exercise perseverance and barriers. *Research Quarterly for Exercise and Sport*, 72(2), 104-116.

Zhu, W., Guan, S., & Yang, Y. (2010). Clinical implication of Tai Chi interventions: A review. *American Journal of Lifestyle Medicine*, 4(Sept./Oct.), 418-432.

Economic Development Theme

KCH Theme Participants: RUOPENG AN; FLAVIA ANDRADE; MIKE DE LISIO; CHUCK HILLMAN; CASSIE MEINERT; STEVE NOTARO; DAVID STRAUER

1. Examples of how KCH faculty contributes to the Economic Development VFE theme:

- The impact of economic inequalities on health outcomes and health behavior (**Andrade**)
- How racial disparities exposure to poverty and poor healthcare access impacts health outcomes and health behaviors (**Andrade**)
- Guiding policy making regarding providing adequate services for minority groups (**Andrade**)
- Quantitative evaluations of public policies to promote healthy behaviors and reduce the burden of chronic illnesses (**An**)

- The relationship between neighborhood food environment and diet/obesity **(An)**
- Relationship between local labor market fluctuations and physical activity **(An)**
- The adoption of incentives or legislation for increase participation in exercise based upon peer-reviewed research could have major public health implications **(De Lisio)**
- Living in racially segregated and economically deprived neighborhoods and health **(Grigsby-Toussaint)**
- International Health, CHLH 415 introduces students critical links between global health and social and economic development **(Schwingel)**
- How structural factors such as poverty and the distribution of wealth influences health outcomes and health care infrastructure in developing countries **(Iwelunmor)**
- Employment status as an indicator of clinically meaningful events in persons with multiple sclerosis physical activity as a method of maximizing employment and associated economic outcomes **(Motl)**
- How chronic health conditions and disability impact individual's ability to access the job market, impacts wages, and the relationship between poverty and disability **(Strauser)**
- Commercial development of improved wheelchair technology for the mobility impaired **(Sosnoff)**
- Patients with kidney failure account for greater than 7% of Medicare expenditures **(Wilund)**
- Comprehensive, intensive lifestyle interventions (changes in nutrition and physical activity behavior) can be implemented in a sustainable and cost-effective manner in hemodialysis clinics. **(Wilund)**
- The economic consequences of sedentary behavior **(Zhu)**
- The design of new active office working environments **(Zhu)**

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An R, Sturm R. School and residential neighborhood food environment and diet among California youth. *American Journal of Preventive Medicine*. 2012;42(2):129-135

An R, Liu J. Local labor market fluctuations and physical activity among adults in the United States, 1990-2009. *ISRN Public Health*. 2012;doi:10.5402/2012/318610

Beltrán-Sánchez, H., & **Andrade, F. C. D.** (2013). Educational and Sex Differentials in Life Expectancies and Disability-Free Life Expectancies in São Paulo, Brazil, and Urban Areas in Mexico. *Journal of Aging and Health*.

Loggins, S., **Andrade, F. C. D.** (2013). Despite an Overall Decline in U.S. Infant Mortality Rates, the Black/White Disparity Persists: Recent Trends and Future Projections. *Journal of Community Health*. doi: 10.1007/s10900-013-9747-0.

Jimenez de Tavarez, M.M. & **Andrade, F. C. D.** (2013). Educational Differentials in Tobacco Use and Alcohol Consumption in Dominican Republic. *The International Journal of Health and Wellness*, 3(1): 11-23

Andrade, F. C. D. (2012). Overview: Caregiving and Long-term Care of Older Latinos: Formal and Informal Care Arrangements. In J. Angel, K. Markides and F. Torres-Gil (Eds.), *Aging, Health, and Longevity in the Mexican-Origin Population*. Springer (pp 185-192).

Piedra, L. M., **Andrade, F. C. D.** & Larrison, C. R. (2011). Building Response Capacity: The Need for Universally Available Language Services. In L.P Buki and L.M. Piedra (Eds.), *Creating Infrastructures for Latino Mental Health*. Springer (pp 55-75). doi: 10.1007/978-1-4419-9452-3_3

Grigsby-Toussaint, D.S., Lipton, R., Chavez, N., Handler, A., Johnson, T., Kubo, J. (2010). Neighborhood socioeconomic change and diabetes risk: Findings from the Chicago Childhood Diabetes Registry, *Diabetes Care*, 33, 1065-1068.

Jones, A., **Grigsby-Toussaint, D.**, Kubo, J. (2013). Black-White Residential Segregation and Diabetes Status: Results from the Behavioral Risk Factor Surveillance System, *Open Journal of Preventive Medicine*, 3 (2): 165-171.

Dlugonski, D., Pilutti, L. A., Sandroff, B. M., Suh, Y., Balantrapu, S., & **Motl, R. W.** (in press). Steps per day among persons with multiple sclerosis: Variation by demographic, clinical, and device characteristics. *Archives of Physical Medicine and Rehabilitation*.

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Chodzko-Zajko, W, **Schwengel, A.** Transnational Strategies for the Promotion of Physical Activity and Active Aging: The World Health Organization Model of Consensus Building in International Public Health. *Quest*, 61: 25-38, 2009.

Schwengel, A., Niti, M., Tang, C. and Ng, P.N. Continued work employment and volunteerism and mental well-being of older adults: Singapore longitudinal ageing studies. *Age and Ageing*, 1-7, 2009.

Chodzko-Zajko, W.J., **Schwingel, A.C.** Beattie, Lynn Bonita, DeMano, Angela, Earle, Roger, Hawkins, Margaret, et al., (2010). Promoting and Disseminating the 2008 Physical Activity Guidelines for Americans throughout the Aging Network, *Journal on Active Aging*, November 2010.

Benedetti, **Schwingel**, Torres. Physical activity acting as a resource for social support among older adults in Brazil. *The Journal of Human Sport and Exercise*, Vol. 6, No. 2, pp. 452-461, 2011.

Chodzko-Zajko, **Schwingel**, Romo-Pérez. Un análisis crítico sobre las recomendaciones de actividad física en España (A critical analysis of physical activity recommendations in Spain). *Gac Sanit*, 26(6): 525–533, 2012.

Daigle SC, **Sosnoff JJ**, Hsiao-Wecksler ET. (2012). An evaluation of an automatic gear-shifting system for manual wheelchairs. *Journal of Medical Devices*, 6 (1).

Strauser, D. R., Wagner, S., Wong, W.K. & O'Sullivan, D. (2012) Career readiness, developmental work personality and age of onset in young adult CNS survivors. *Disability and Rehabilitation (Early on-line 1-8)*.

O'Sullivan, D., **Strauser, D.R.**, and Wong, W.K. (2012) Examining the differences in developmental work personality across disability category: Implications for individuals with psychiatric disabilities. *Work: Journal of Prevention, Assessment, and Rehabilitation*. 42, 259-267.

Education Theme

KCH Theme Participants: REGGIE ALSTON; KIM GRABER; STEVE PETRUZZELLO; LAURA RICE; AMY WOODS; JEFF WOODS; JUSTINE KAPLAN; KRISTI CARLSON; CAROL FIRKINS, AMY O'NEILL

1. Examples of how KCH faculty contributes to the Education VFE Theme:

- By exploring how different strategies and technologies can be used to improve learning and critical thinking among college students. **(Andrade)**
- By providing doctoral candidates with scholarly knowledge and practical experiences related to teaching, mentoring, and presenting in the professoriate **(Graber)**
- By understanding the relationship between health and aspects of cognition that underlie academic achievement. **(Hillman)**
- By exploring how single bouts of exercise influence cognitive performance and academic achievement in the classroom. **(Hillman)**
- By influencing educational policy in USA and beyond. **(Hillman)**
- By contributing to the development of textbooks on rehabilitation engineering and assistive technologies. **(Jan)**
- By translating advanced knowledge to the K-12 students **(Jan)**

- By educating patients, physicians, and the public about cancer **(Klonoff-Cohen)**
- By educating teachers and families about vision and refractive errors in preschoolers **(Klonoff-Cohen)**
- By provide a historical lens for contemporary scientific practices and technologically-driven concerns **(Littlefield)**
- By educating future generations about issues of access, globalization, intersectionality, and diversity in the fields of science and technology studies **(Littlefield)**
- By teaching grant writing and professional development to prepare doctoral students for life in higher education **(McAuley)**
- By providing educational materials related to physiological and psychological effects of exercise **(Petruzzello)**
- By educating professionals about the physiological and psychological challenges of firefighting **(Petruzzello)**
- By providing educational opportunities for persons with disabilities. **(Pilutti)**
- By developing physical activity guidelines for persons with disabilities, specifically multiple sclerosis. **(Pilutti)**
- By develop and refining clinical practice guidelines to improve therapists' delivery of healthcare services. **(Rice, I.)**
- Through the education of healthcare providers to improve the care they provide in rehabilitation services. **(Rice, L.)**
- By creating knowledge concerning the historical, artistic, cultural dimensions of kinesiology **(Sydnor)**
- By understanding and enhancing teacher development and improving physical education teacher effectiveness. **(Woods, A.)**
- By developing national and international youth fitness tests **(Zhu)**

2. Selected KCH Publications Related to the Education VFE Theme:

Andrade, F. C. D. (in press). Bringing statistics to life. In A. Burton, MA. Winkelmes (Eds.), *An Illinois Sampler: Talking about Teaching on the Prairie*. Champaign-Urbana, IL: University of Illinois Press.

Graber, K. C. (2011). Studentship in preservice teacher education: A qualitative study of undergraduate students in physical education. In D. Kirk (Ed.), *Physical education: Major themes in education* (Volume III: Teachers, teaching, and teacher education in physical education) (pp. 177-197). London: Routledge. (Reprinted from *Research Quarterly for Exercise and Sport*, 62, 41-51.)

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Graber, K. C., Erwin, H. E., **Woods**, A. M., Rhoades, J., & **Zhu**, W. (2011). A national profile of teacher education faculty: The construction of an online survey. *Measurement in Physical Education and Exercise Science*, 15, 245-256.

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Locke, L. F., & **Graber**, K. C. (2008). Elementary school physical education. *Elementary School Journal*, 108, 147-274.

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Burns S and **Jan** YK (2012). Chapter 1: Diabetic foot ulceration and amputation. In: Kim CT, ed. *Rehabilitation Medicine*. InTech Publisher, Croatia, pp 1-20. (ISBN: 979-95-330-7517-3)

Lung CW and **Jan** YK (2012). Chapter 1: Soft tissue biomechanics of diabetic foot ulcers. In: Ruiz AJC and Mendoza JMA, eds. *Soft Tissue: Composition, Mechanisms of Injury and Repair*. Nova Science Publishers, Hauppauge, NY, pp 1-32. (ISBN: 978-16-225-7363-9)

Jan YK, Liao F, and Foreman RD (2011). Subject: EEG/EKG. In: Greenwald SJ and Thomley JE, eds. *Encyclopedia of Mathematics and Society*. Salem Press, Pasadena, CA, pp 329-330. (ISBN: 978-15-876-5844-0)

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Brienza DM, **Jan YK**, and **Zanca JM** (2007). Chapter 7: Tissue Integrity Management. In: Cooper RA, Ohnabe H, and Hobson DA, eds. *An Introduction to Rehabilitation Engineering*. CRC Press, Taylor and Francis Group, Boca Raton, FL, pp 182-198. (ISBN: 978-08-493-7222-3)

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Brody BL, Roch-Levecq A, **Klonoff-Cohen HS**, Brown SI. Refractive Errors in Low-Income Preschoolers. *Ophthalmic Epidemiol*. 2007; 14(4):223-9.

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Klonoff-Cohen HS. Should women and men be made to give up smoking before being offered IVF? *Expert Review of Obstetrics & Gynecology*. 2010 Jan; 5(1):31-38.

Littlefield, Melissa and Jenell Johnson. 2012. "The Neuroscientific Turn: Critical Perspectives on a Translational Discipline," *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain*. University of Michigan Press. 1-25.

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Littlefield, Melissa. 2010. "Matter for Thought: The Psychon in Neurology, Psychology and American Culture, 1927-1943" *Neurology and Modernity*. Eds. Andrew Shail and Laura Salisbury. Houndsmills: Palgrave. 267-286.

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Lox, C.L., Martin Ginis, K.A., & **Petruzzello**, S.J. (2010). The psychology of exercise: Integrating theory and practice, 3rd edition. Scottsdale, AZ: Holcomb-Hathaway.

Petruzzello, S.J. (in press). Electromyography (EMG). In R.C. Eklund & G. Tenenbaum (Eds.), Encyclopedia of Sport and Exercise Psychology, Sage Reference.

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Rice, L.A., I. Smith, A.Kelleher, K.Greenwald, M.L. Boninger. Impact of a Wheelchair Education Protocol based on Practice Guidelines for Preservation of Upper Limb Function: A Randomized Trial. In Press: Archives of Physical Medicine and Rehabilitation.

Rice, L.A., I. Smith, A. Kelleher, K. Greenwald, C. Hoelmer, M.L. Boninger. Impact of the Clinical Practice Guideline for Preservation of Upper Limb Function on Transfer Skills of Persons with Acute Spinal Cord Injury. Archives of Physical Medicine and Rehabilitation. 2013. 94(7): p. 1230-46.

Sydnor, S. 2006. Contact with God, body & soul: Sport history and the Radical Orthodoxy project. In M. Phillips, (Ed.), Sport History Into the New Millennium: A Postmodern Analysis. State University of New York Press, pp. 202-226.

Sydnor, S. 2005. Moving souls. The Journal of Physical Education, Recreation & Dance, 76/8, 34-37.

Sydnor, S. 2001. New times, physical education and cyberspace. *Journal of Sport and Social Issues*, 25/4, 430-436.

Sydnor, S. 1989. Alexander the Great and sport history: A commentary on scholarship. *Journal of Sport History*, 16, 70-78.

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Lux, K., & **Woods**, A. M. (2012). National Board Certified physical educators: Perceived differences from colleagues. *Global Journal of Health and Physical Education Pedagogy*, 1, 189-202.

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Zhu, W. (2007). Assessing kinesiology students' learning in higher education. *Quest*, 59, 124-142.

Zhu, W., Rink, J., Placek, J. H., Graber, K. C., Fox, C., Fiset, J. L., Dyson, B., Park, Y., Avery, M., Franck, M., & Raynes, D. (2011). Physical education metrics: Background, testing theory, and methods. *Measurement in Physical Education and Exercise Science*, 15, 87-99.

Zhu, W., Fox, C., Park, Y., Fiset, J. L., Dyson, B., **Graber**, K. C., Avery, M., Franck, M., Placek, J. H., Rink, J., & Raynes, D. (2011). Development and calibration of an item bank for PE metrics assessments: Standard 1. *Measurement in Physical Education and Exercise Science*, 15, 119-137.

Zhu, W., Boiarskaia, E., Welk, G., & Meredith, M. (2010). Physical education and school contextual factors relating to students' achievement and cross-grade differences in aerobic fitness and obesity. *Research Quarterly for Exercise and Sport*, 81(Suppl. 3), S53-S64.

National Association for Sport and Physical Education (2008). PE metrics: Assessing the national standards, Standard 1. Reston, VA: Author. (Written as a member of the National Assessment Task Force with co-authors: Avery, M., Dyson, B., Fox, C., Fiset, J., Franck, M., Placek, J., Rink, J., & **Zhu**, W.)

Information and Technology Theme:

KCH Theme Participants: MARNI BOPPART; YIH-KUEN JAN; MELISSA LITTLEFIELD; EDWARD MCAULEY; ROBERT MOTL; SEAN MULLEN; LARA PILUTTI; IAN RICE; JEFF WOODS; WEIMO ZHU

1. Examples of how KCH faculty contributes to the Information & Technology VFE Theme:

- By examining factors associated with the use of assistive technologies by persons with disabilities, particularly across races. **(Alston)**
- By exploring strategies and technologies to improve learning and critical thinking in the classroom **(Andrade)**
- By developing online resources to educate primary care physicians about caring for cancer patients and survivors in underserved communities. **(Klonoff-Cohen)**
- By developing novel technologies to measure activities and behavior of wheelchair users. **(Jan)**
- By using cloud computing to improve clinical practice on monitoring physical activity **(Jan)**
- By translating engineering discoveries to develop technologies to promote the quality of life in people with disabilities. **(Jan)**
- By exploring the use of computer technology to understand and influence physical activity behavior **(McAuley)**
- By designing novel experimental paradigms for testing hypotheses about deception and truth **(Littlefield)**
- By exploring the history of technology use in psychophysiology **(Littlefield)**
- By improving adaptive technologies to optimize function in persons with disabilities **(Rice, I.)**
- By exploring the use of adapted technologies to develop accessible exercise programs and testing for persons with disabilities. **(Pilutti)**
- By utilizing web-based technologies for delivering interventions in persons with neurological conditions that preclude typical in-person delivery mechanisms. **(Motl; Pilutti)**
- Through the collection and management of person-centered data for medical management of patients. **(Motl; Pilutti)**
- By evaluating technology-delivered exercise and cognitive training interventions **(Mullen)**

- By evaluating tablet-based psychosocial and cognitive assessment methodologies (**Mullen**)
- Through the development of remote monitoring systems to prevent the development of skin breakdown and other secondary impairments associated with their disability. (**Rice, L.**)
- By investigating the utility of various technologies to detect movement impairment (**Sosnoff**)
- By applying new information technology to physical activity assessment and promotion. (**Zhu**)

2. Selected KCH Publications Related to the Information & Technology VFE Theme:

Loggins, S.S., **Alston**, R.A., & Lewis, A. (in press). Utilization of assistive technology by persons with physical disabilities: An examination of predictive factors by race. *Disability and Rehabilitation*.

Andrade, F. C. D. (in press). Bringing statistics to life. In A. Burton, MA. Winkelmes (Eds.), *An Illinois Sampler: Talking about Teaching on the Prairie*. Champaign-Urbana, IL: University of Illinois Press.

Yang TD, Hutchinson S, Rice LA, Watkin KL, and **Jan YK** (2013). Development of a scalable monitoring system for wheelchair tilt-in-space usage. *International Journal of Physical Medicine and Rehabilitation*, 1(4), 1000129.

Fu J, Hao W, White T, Yan Y, Jones M, and **Jan YK**. Capturing and analyzing wheelchair maneuvering patterns with mobile cloud computing. IEEE International Conference on Engineering in Medicine and Biology Society, Osaka, Japan, July 3-7, 2013.

Fu J, Wiechmann P, **Jan YK**, and Jones M. Towards an intelligent system for clinical guidance on wheelchair tilt and recline usage. IEEE International Conference on Engineering in Medicine and Biology Society, San Diego, CA, August 28-September 1, 2012.

Fu J, Genson J, **Jan YK**, and Jones M. Using artificial neural network to determine favorable wheelchair tilt and recline usage in people with spinal cord injury. IEEE International Conference on Tools with Artificial Intelligence, Boca Ranton, FL, November 7-9, 2011.

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Hyunkyu, L., Baniqued, P., Cosman, J., **Mullen, S., McAuley, E.**, Severson, J., & Kramer, A. F. (2012). Examining cognitive function across the lifespan using a mobile application. *Computers in Human Behavior*, 28(5), 1934-1946. doi:10.1016/j.chb.2012.05.013

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Energy & Environment Theme:

KCH Theme Participants: NICK BURD; DIANA GRIGSBY-TOUSSAINT; EDDIE MCAULEY; SEAN MULLEN; KARIN ROSENBLATT; SYNDY SYDNOR; KEN WILUND; LENA HANN

1. Examples of how KCH faculty contributes to the Energy & Environment VFE theme:

- By defining the potential of plant-based proteins to stimulate postprandial muscle protein accretion and their applicability as a sustainable food source. **(Burd)**
- By examining the role of exercise may be playing in protection from radiation damage. Changing the public perception of radiation may lead to the more widespread adoption of nuclear power as a sustainable energy source. **(De Lisio)**
- By examining the connections between ecosystems services (e.g., greenspace) and health, as well as accessibility and availability of foods, particularly for vulnerable populations. **(Grigsby-Toussaint)**
- By examining the effects of population growth on health and well-being in developing countries. **(Iwelunmor)**
- By understanding how aspects of the environment affect health behaviors, particularly among under-represented populations and persons with chronic disease. **(Motl)**
- By examining the effect of endocrine disruption on cancer risk **(Rosenblatt)**
- By providing undergraduate students with the skills they need to develop programs for older adults to educate them about environmental sustainability **(Graber)**
- By exploring the effects of caffeine, secondhand smoke, bisphenol A, sulfur dioxide, and drinking water to protect the public from cancer, birth defects, and reproductive harm, and to inform citizens about such exposures. **(Klonoff-Cohen)**
- By evaluating the effects of outdoor carbon monoxide, nitrogen dioxide and SIDS, and passive tobacco on SIDS. **(Klonoff-Cohen)**
- By exploring links between global health and social and economic development. **(Schwingel)**
- By understanding physical activity friendly environments in community. **(Zhu)**

2. Selected KCH Publications Related to the Information & Technology VFE Theme:

Churchward-Venne TA, **Burd** NA, Mitchell CJ, West DW, Philp A, Marcotte GR, Baker SK, Baar K, and Phillips SM. Supplementation of a suboptimal protein dose with leucine or essential amino acids: effects on myofibrillar protein synthesis at rest and following resistance exercise in men. *J Physiol* 590: 2751-2765, 2012.

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Biological effects and adaptive response from single and repeated computed tomography scans in reticulocytes and bone marrow of C57BL/6 mice.

Phan N, **De Lisio** M, Parise G, Boreham DR. *Radiat Res.* 2012 Feb;177(2):164-75. Epub 2011 Nov 7. PMID:22059980

Exercise-induced protection of bone marrow cells following exposure to radiation.

De Lisio M, Phan N, Boreham DR, Parise G. *Appl Physiol Nutr Metab.* 2011 Feb;36(1):80-7. doi: 10.1139/H10-087. PMID:21326381

Exercise training enhances the skeletal muscle response to radiation-induced oxidative stress.

De Lisio M, Kaczor JJ, Phan N, Tarnopolsky MA, Boreham DR, Parise G. *Muscle Nerve.* 2011 Jan;43(1):58-64. doi: 10.1002/mus.21797. PMID:21171096

Grigsby-Toussaint, D.S., Zenk, S.N., Odoms-Young, A., Ruggiero, L., Moise, I. (2010). Availability of commonly consumed and culturally-specific fruits and vegetables in African-American and Latino neighborhoods. *Journal of the American Dietetic Association*, 110, 746-752.

Grigsby-Toussaint, D., Chi, S., Fiese, B.H. (2011). Where they live, how they play: Neighborhood greenness and outdoor physical activity among preschoolers, *International Journal of Health Geographics*, 10:66.

Grigsby-Toussaint, D. S., Harrison, K., Fiese, B., Nelson, M.R., Christoph, M.J. 2013. Exploring marketing targeted to youth in food stores in *Advances in Communication Research to Reduce Childhood Obesity* (Williams, J., Pasch, K., Collins, C., Eds.). New York: Springer.

Grigsby-Toussaint, D., Rooney, M.R.(In Press). Food marketing targeted to youth and families: What do we know about stores where moms actually shop? *Journal of Environmental and Public Health*.

Geller, K. S., Nigg, C. R., Ollberding, N. J., **Motl**, R. W., Horwath, C., & Dishman, R. K. (in press). Access to environmental resources and physical activity levels of adults in Hawaii. *Asia Pacific Journal of Public Health*.

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Chodzko-Zajko, W, **Schwingel**, A. Transnational Strategies for the Promotion of Physical Activity and Active Aging: The World Health Organization Model of Consensus Building in International Public Health. *Quest*, 61: 25-38, 2009.

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Zhu, W., & Owen, N. (in progress). Sedentary behavior and health: Concepts, assessment & intervention. Champaign, IL: Human Kinetics.

Social Equality & Cultural Understanding Theme:

KCH Theme Participants: REGGIE ALSTON; FLAVIA ANDRADE; CHUNG-YI CHIU; DIANA GRIGSBY-TOUSSAINT; JULIET IWELUNMOR; HILLARY KONOFF-COHEN; IAN RICE; ANDIARA SCHWINGEL; JAKE SOSNOFF; WEIMO ZHU; SUSAN FARNER

1. Examples of how KCH faculty contributes to the Social Equality & Cultural Understanding VFE theme:

- By exploring the interplay between race, adjustment to disability, and disparities in rehabilitation outcomes. **(Alston)**

- By exploring how cultural differences influence health outcomes. **(Iwelunmor)**
- By improving social and sports participation of persons with disabilities **(Rice, I.)**
- By exploring how gender and racial inequalities shape life experiences, such as educational achievement, and later life health status. **(Andrade)**
- By studying how access to care and education influences health outcomes. **(Andrade)**
- By analyzing national health and rehabilitation data sets to understand how race/ethnicity, gender, age, education, occupation, and economic status influence health disparity and employment conditions **(Chiu)**
- By examining differential demand responses to health-related excise taxes across racial/ethnic groups in the U.S. **(An)**
- By studying the effect of mental health parity legislation on disparities in mental health care **(An)**
- By developing assistive devices to assist people with disabilities to pursue their full potential on employment and social participation and increase the quality of life **(Jan)**
- By advocating for disability related acts and laws to empower people with disabilities **(Jan)**
- By exploring histological differences between racial & ethnic groups and breast cancer, and differences between women and men experiencing cardiovascular events. **(Klonoff-Cohen)**
- Through the evaluation of quality of life measures in persons affected by a variety of disabilities and evaluation of how those individuals are perceived by their peers. **(Rice, L.)**
- By exploring the feasibility of implementing a behavioral change program addressing physical activity, nutrition and stress management in underrepresented groups **(Schwingel)**
- By exploring how social programs such as vocational rehabilitation promote equality, justice, and personal freedom of individuals with chronic health conditions and disability. **(Strauser)**
- By understanding differences and issues of diversity are examined as variables that impact employment outcomes, community integration, and overall quality of life. **(Strauser)**
- By creating and critiquing historical-cultural knowledge of systems/customs/traditions uniquely associated with physical culture, play and ritual across time and space. **(Sydnor)**

- By conducting disability research and promoting culture exchanges worldwide. **(Zhu)**
- By ameliorating health disparities associated with diabetes and obesity **(Grigsby-Toussaint)**

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Brand, D.I., & **Alston**, R.J. (2012). Disability and race: A comparative analysis of physical activity patterns and health status. *Disability and Rehabilitation*, 34, 795-801.

Harvey, I.S., & **Alston**, R.J. (2011). Understanding preventive behaviors among Mid-Western African American men: A qualitative study on prostate cancer screening. *Journal of Men's Health*, 8, 140-151.

Smith, D.L., & **Alston**, R.J. (2009). The relationship of race and disability to life satisfaction. *Journal of Rehabilitation*, 75, 3-10.

Raffaelli, M., **Andrade**, F. C. D., Poppe, E., Sanchez-Armas, O., Vidal, I. V., Aradillas-Garcia, C., & 2008 UP Amigos Research Team (2013). Gender Differences in Depressive Symptoms and Health Behaviors among Mexican Adolescents and Young Adults. *Interamerican Journal of Psychology*, 47(1), 75-82.

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Andrade, F. C. D., & Viruell-Fuentes, E. (2011). Changing Demographics of the Latino Population. In L.P Buki and L.M. Piedra (Eds.), *Creating Infrastructures for Latino Mental Health*. Springer (pp 3-30).

Buki, L. P., Mayfield, J. B. & **Andrade**, F. C. D. (2011). Health Needs of Latina Women in Central Illinois: Promoting Early Detection of Cervical and Breast Cancer. In R. Martinez (Ed.), *Latinos in the Midwest*. East Lansing, MI: Michigan State University Press (pp.157-180).

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Airhihenbuwa, C. O., Ford, C. L., & **Iwelunmor, J. I.** (2013). Why Culture Matters in Health Interventions Lessons From HIV/AIDS Stigma and NCDs. *Health Education & Behavior*.

Jan YK, Shen S, Foreman RD, and Ennis WJ (2013). Skin blood flow response to locally applied mechanical and thermal stresses in the diabetic foot. *Microvascular Research*, 89, 40-46.

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Lafferrier JZ, **Rice I**, Pearlman J, Sporner M, Cooper RM, Liu H, Cooper RA.(2012)Technology to improve sports performance in wheelchair sports. *Sports Technology*, vol. 5, no. 1-2, pp. 4-19.

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