

## VITA

**NAME:** Charles J. Tanner IV

### **CURRENT POSITION**

Visiting Instructor/Research Associate; East Carolina University, Department of Exercise and Sports Science, School of Health and Human Performance.

### **EDUCATIONAL BACKGROUND**

1999 **M.A. in Exercise Physiology**

East Carolina University, School of Health and Human Performance, Greenville, NC.  
Effect of exercise on phosphatidylinositol 3-kinase activity in middle-aged men.  
*Master's Thesis*, East Carolina University. Completed, 1999.

1996 **B.S. in Exercise and Sports Science**

East Carolina University, School of Health and Human Performance: Greenville, NC.

### **PROFESSIONAL EXPERIENCE**

5/97 - Present

**Research Associate/Test Coordinator**

College of Health and Human Performance  
International Human Performance Center (Walker Center)  
East Carolina University, Greenville, NC

5/98 - 4/00

**Laboratory Technician II**

Department of Exercise and Sports Science  
Human Performance Laboratory  
East Carolina University, Greenville, NC

8/96 - 5/98

**Graduate Research/Teaching Assistant**

Department of Exercise and Sports Science  
Human Performance Laboratory  
East Carolina University, Greenville, NC

5/96 - 8/96

**Research Assistant (undergraduate internship)**

Department of Exercise and Sports Science  
Human Performance/Biomechanics Laboratories  
East Carolina University, Greenville, NC

1/93 - 1/94

**Volunteer Physical Therapist Aid**

Pitt County Memorial Hospital  
Greenville, NC

### **HONORS**

Nominated as a co-recipient for "The Chancellor's Synergy Award" as part of the Obesity and Diabetes Research Group, East Carolina University, 1999.

LeRoy T. Walker-International Human Performance Center, Appreciation for Outstanding Contributions, 1998.

Abstract of research selected as one of the Top 30, Southeast American College of Sports Medicine, 25<sup>th</sup> Annual Meeting, Atlanta, GA 1997.

Poster presentation selected as one of the Top 10, 2nd Annual Graduate Student Research Symposium, East Carolina University, 1996.

### **PROFESSIONAL ASSOCIATIONS**

American College of Sports Medicine (1998 - present)

Southeast American College of Sports Medicine (1996 - present)

American Society of Exercise Physiologist (1999 - present)

### **CERTIFICATIONS**

American College of Sports Medicine, Certified Exercise Test Technologist, Current

American Heart Association, Heartsaver AED, Current

North Carolina Healing Arts - Dual Energy X-ray Absorptiometry Operator, Current

### **RESEARCH SUPPORT**

#### **Current/Ongoing**

RO1-DK071081 (PI, Hickner) 05/01/06-04/30/11

NIH/NIDDK, Tanner-Co Investigator, Research

Reduction in CVD risk in children by physical activity

The purpose of these investigations is to determine the influence of physical activity on CVD risk factors and the role of NO in fat metabolism of African American and Caucasian children. (Active)

RO1-HL057354 (PI, Kraus) 04/01/04-03/30/09

NIH/NHLB, Tanner-Co Investigator, Research

Peripheral Effects of Exercise on Cardiovascular Health

The purpose of this study is to continue to investigate the biological mechanisms through which chronic physical activity alters carbohydrate metabolism and lipid metabolism resulting in improvements in these parameters of cardiovascular health and fitness in humans. The focus of the continuation project will be on a) resistance training and b) gene array analyses. This is a collaborative effort with Duke University. (Active)

#### **Previous**

**2000-05** National Institutes of Health, RO1-DK56112 “Lipid Metabolism in Obesity, Weight Loss and Exercise”, Co-Investigator, PI Houmard.

**2004-05** Under Armour Apparel, “Thermoregulation in Under Armour Apparel”, Co-Investigator

**1999-04** National Institutes of Health, RO1 HS35793, “Lipid Metabolism in Obesity, Weight Loss and Exercise”, Co-Investigator (muscle cell cultures and blood sample analysis), Funded for four years, PI, Houmard.

- 2001-02** Experimental and Applied Sciences, “The Effect of L-citrulline Ingestion on Maximal Aerobic Capacity/Treadmill Time to Exhaustion”, Co-Investigator, Funded for two years, PI, Hickner.
- 1999-00** Dupont, “Thermal regulation in Coolmax and Thermostat clothing”, Consultant, Funded, \$57,696 to ECU for one year. PI, Hickner.
- 1997-00** National Institutes of Health, “PC-1 in insulin resistant humans”, Research Technician, Funded, \$294,284 to ECU over four years. PI, Goldfine, UCSF, total costs \$1,000,109.
- 1997-98** American College of Sports Medicine Foundation, “Impact of exercise training on insulin signaling in the aged”, Graduate Research Assistant, Funded, \$14,989 for one year. PI, Houmard.

## PUBLICATIONS

- Huffman KM, Slentz CA, Johnson JL, Samsa GP, Duscha BD, **Tanner CJ**, Annex BH, Houmard JA, Kraus WE. Impact of hormone replacement therapy on exercise training-induced improvements in insulin action in sedentary overweight adults. *Metabolism* (accepted for publication January 2008)
- Johnson JL, Slentz CA, Houmard JA, Samsa GP, Duscha BD, Aiken LB, McCartney JS, **Tanner CJ**, Kraus WE. Exercise training amount and intensity effects on metabolic syndrome (from Studies of a Targeted Risk Reduction Intervention through Defined Exercise). *Am J Cardiol.* 100: 1759-1766, 2007.
- Berggren JR, **Tanner CJ**, Houmard JA. Primary cell cultures in the study of human muscle metabolism. *Exerc Sport Sci Rev.* Apr;35(2):56-61. 2007.
- Slentz CA, Houmard JA, Johnson JL, Bateman LA, **Tanner CJ**, McCartney JS, Duscha BD, Kraus WE. Inactivity, exercise training and detraining, and plasma lipoproteins. STRRIDE: a randomized, controlled study of exercise intensity and amount. *J Appl Physiol.* Aug;103(2):432-42. 2007.
- Huffman, K.M., Samsa, G.P., Slentz, C.A., Duscha, B.D., Johnson, J.L., Bales, C.W., **Tanner, C.J.**, Houmard, J.A., and Kraus, W.E. Response of high-sensitivity C-reactive protein to exercise training in an at-risk population. *The American Heart Journal.* 152(4): 793-800, 2006.
- Hickner, R.C., **Tanner, C.J.**, Evans, C.A., Clark, P.D., Haddock, A., Fortune, C., Geddis, H., Waugh, W., and McCammon, M. L-Citrulline reduces time to exhaustion and insulin response to a graded exercise test. *Med Sci Sports Exerc* 38(4): 660-666, 2006.
- McGehee J.C., Tanner C.J., Houmard J.A. A comparison of methods for estimating the lactate threshold. *J Strength Cond Res.* 19(3):553-558, 2005

- Slentz, C.A., Aiken, L.B., Houmard, J.A., Bales, C.W., Johnson J.L., **Tanner C.J.**, Duscha, B.D., and Kraus, W.E. Inactivity, exercise and visceral fat. STRRIDE: a randomized, controlled study of exercise intensity and amount. *J Appl Physiol.* 99: 1613-1618, 2005.
- Pender C., Goldfine I.D., Kulp J.L., Tanner C.J., Maddux B.A., MacDonald K.G., Houmard J.A., Youngren J.F. Analysis of insulin-stimulated insulin receptor activation and glucose transport in cultured skeletal muscle cells from obese subjects. *Metabolism* 54(5):598-603, 2005.
- Berggren, J.R., **Tanner, C.J.**, Koves, T.R., Muoio, D.M., and Houmard, J.A. Glucose uptake in muscle cell cultures from endurance-trained men. *Med Sci Sports Exerc* 37(4): 579-584, 2005.
- Hittle, D.S., Kraus, W.E., **Tanner, C.J.**, Houmard, J.A., and Hoffman, E.P. Exercise training increases electron and substrate shuttling proteins in muscle of overweight men and women with the metabolic syndrome. *J Appl Physiol.* 98(1): 168-179, 2005
- Pender, C., Goldfine, I.D., **Tanner, C.J.**, Pories, W.J., MacDonald, K.G., Havel, P.J., Houmard, J.A., Youngren, J.F. Muscle insulin receptor concentrations in obese patients post bariatric surgery: relationship to hyperinsulinemia. *Int J Obes Relat Metab Disord.* 28(3): 363-369, 2004.
- Houmard, J.A., **Tanner, C.J.**, Slentz, C.A., Duscha, B.D., McCartney, J.S., Kraus, W.E. Effect of the volume and intensity of exercise training on insulin sensitivity. *J Appl Physiol.* 96: 101-106, 2004.
- Gray, R., **Tanner, C.J.**, Pories, W.J., MacDonald, K.G., & Houmard, J.A. Effect of weight loss on muscle lipid content in morbidly obese subjects. *Am J Physiol Endocrinol Metab.* 284:E726-E732, 2003.
- Houmard, J.A., **Tanner, C.J.**, Chunli Yu., Cunningham P.G., Pories, W.J., MacDonald, K.G., & Shulman, G.I. Effect of weight loss on insulin sensitivity and intramuscular long-chain fatty Acyl-CoAs in morbidly obese subjects. *Diabetes* 51: 2959-2963, 2002.
- Hulver, M.W., Zheng, D., **Tanner, C.J.**, Houmard, J.A., Kraus, W.E., Slentz, C.A., Sinha, M.K., Pories, W.J., MacDonald, K.G., & Dohm, G.L. Adiponectin is not altered with exercise training despite enhanced insulin action. *Am J Physiol Endocrinol Metab* 283: E861-E865, 2002.
- Tanner, C.J.**, Barakat, H.A., Dohm, G.L., Pories, W.J., MacDonald, K.G., Cunningham, P.R.G., Swanson, M.S., & Houmard, J.A. Muscle fiber type is associated with obesity and weight loss. *Am J Physiol Endocrinol Metab* 282: E1191-E1196, 2002.
- Muoio, D.M., Way, J.M., **Tanner, C.J.**, Winegar, D.A., Kliwer, S.A., Houmard, J.A., Kraus, W.E., & Dohm, G.L. Peroxisome proliferators-activated receptor-alpha regulates fatty acid utilization in primary human skeletal muscle cells. *Diabetes* 51: 901-909, 2002.

Slentz, C.A., Torgan, C.E., Houmard, J.A., **Tanner, C.J.**, & Kraus, W.E. Long-term effects of exercise training and detraining on carbohydrate metabolism in overweight subjects. *Clinical Exercise Physiology 4(1)*: 22-28, 2002.

**Tanner, C.J.**, Koves, T.R., Cortright, R.L., Pories, W.J., Kim, Y., Kahn, B.B., Dohm, G.L., & Houmard, J.A. Effects of short-term exercise training on insulin-stimulated PI 3-kinase activity in middle-aged men. *Am J Physiol Endocrinol Metab 282*: E147-E153, 2002.

MacLean, P.S., **Tanner, C.J.**, Houmard, J.A., & Barakat, H.A. Plasma Cholesteryl Ester Transfer Protein Activity is Not Linked to Insulin Sensitivity. *Metabolism 50(7)*: 783-788, 2001.

Noland, R.C., Baker, J.T., Boudreau, S.R., Kobe, R.W., **Tanner, C.J.**, Hickner, R.C., McCammon, M.R., & Houmard, J.A. Effect of intense training on plasma leptin in male and female swimmers. *Med Sci Sports Exerc 33(2)*: 227-231, 2001.

Youngren, J.F., Keen, S., Kulp, J.L., **Tanner, C.J.**, Houmard, J.A., & Goldfine, I.D. Enhanced muscle insulin receptor autophosphorylation with short-term aerobic exercise training. *Am J Physiol Endocrinol Metab 280*: E528-E533, 2001.

Houmard, J.A., Shaw, C.D., Hickey, M.S., & **Tanner, C.J.** Effect of short-term exercise training on insulin-stimulated PI 3-kinase activity in human skeletal muscle. *Am. J. Physiol Endocrinol Metab 277(40)*: E1055-E1060, 1999.

Hickey, M.S., **Tanner, C.J.**, O'Neill, S.D., Morgan, L.J., Dohm, L.G., & Houmard, J.A. Insulin activation of phosphatidylinositol 3-kinase in human skeletal muscle in vivo. *J. Appl. Physiol. 83(3)*:718-722, 1997.

#### **(Submitted Articles In Submission or In Review)**

Bajpeyi, S., **Tanner, C.J.**, Slentz, C.A., Duscha, B.D., McCartney, J.S., Hickner, R.C., Kraus, W.E. and Houmard, J.A. The effect of exercise training on intramuscular triglyceride content. *J. Appl. Physiol.* (In Submission).

Bikman, B.T., Zheng, D., Pories, W., Chapman, W., Pender, J., Bowden, R., Reed, M., Cortright, R., Tapscott, E., Houmard, J.A., **Tanner, C.J.**, Lee, J., Dohm, G.L. Insulin sensitivity is uncoupled from body mass index after bariatric surgery: a possible mechanism. *Diabetes* (In Submission)

#### **OTHER ARTICLES**

Consulting authority, "Insulin Pathway Takes a Jog: Workouts might benefit young and old by employing different molecular messengers (Insulin signaling)", *Science's SAGE KE* (16 January 2002)

Interviewed authority, "Benefits beyond Weight Loss", *Prevention Magazine, Fitness News Article*, March 2000 issue.

**PUBLISHED ABSTRACTS AND/OR PRESENTATIONS**

- Bajpeyi, S., **Tanner, C.J.**, Reed, M., Molskness, S., and Houmard, J.A. Exercise training response to intramyocellular lipid content is not a standard response. *American Diabetes Association 68<sup>th</sup> annual scientific sessions*, June, 2007.
- Benfield, R.D., Hortobajyi, T., **Tanner, C.J.**, and Newton, E. The Physiological Effects of Hydrotherapy on Anxiety and Pain in Human Labor. *The SGI 2007 Annual Scientific Meeting*, March 2007.
- Janiec, M.A., **Tanner, C.J.**, Slentz, C.A., Duscha, B.D., McCartney, J.S., Kraus, W.E., and Houmard, J.A. High intensity is more effective at maintaining enhanced insulin action than low intensity endurance training. *The Physiologist (APS Intersociety Meeting: Integrative Biology of Exercise)*, Abstract# 22.9, Vol.47;No.4, 2004.
- Bajpeyi, S., Berggren, J.R., **Tanner, C.J.**, and Houmard, J.A. Effect of 10 days of endurance training on intramuscular triglyceride level in lean and obese people. *The Physiologist (APS Intersociety Meeting: Integrative Biology of Exercise)*, Abstract# 15.11 Vol.47;No.4, 2004.
- Tanner, C.J.**, Heins, S., McCartney, J.S., Slentz, C.A., Kraus, W.E., and Houmard, J.A. Effect of a 6-month endurance training program on fasting lactate. *ACSM 51<sup>st</sup> Annual Meeting (MSSE Vol.35;No.6 Supplemental, Abstract#0827)*. Indianapolis, IN 2004.
- Sweazy, M., Janiec, M., McCartney, J.S., **Tanner, C.J.**, Houmard, J.A. Effect of a reduced sampling protocol on changes in SI with exercise training. *ACSM 51<sup>st</sup> Annual Meeting (MSSE Vol.35;No.6 Supplemental, Abstract# 2267)*. Indianapolis, IN 2004.
- Berggren, J.R., Huliver, M.W., **Tanner, C.J.**, Koves, T.K., Muoio, D.M., and Houmard, J.A. Defects in morbidly obese skeletal muscle metabolism are retained in primary cell cultures. (*Experimental Biology conference, Abstract# 454.4*). 2004.
- Slentz, C.A., Aiken, L.A., Nelson, R.A., **Tanner, C.J.**, Houmard, J.A., and Kraus, W.A. Adipose tissue density from CT scan: Depot, gender differences and effects of exercise training. Does adipose density reflect fat cell size? (*Experimental Biology conference, Abstract# 826.6*). 2004.
- Evans, C.A., McCammon, M., **Tanner, C.J.**, Clark, P. D., Haddock, A., Fortune, C., Geddis, H. & Hickner, R.C. Citrulline injection reduces maximal treadmill test time-to-exhaustion. *SEACSM 31st Annual Meeting*. Atlanta, GA 2003.
- Cortright, R.N., **Tanner, C.J.**, Sugar, W., & DiCarlo, S. A web-based interactive game in skeletal muscle bioenergetics. *ACSM 49<sup>th</sup> Annual Meeting*. St. Louis, MO 2002.

- Muoio, D.M., **Tanner, C.J.**, Houmard, J.A., Dohm, G.L., & Kraus, W.E. Fuel metabolism in cultured human skeletal muscle cells. *APS Intersociety Meeting: The Integrative Biology of Exercise*. Portland, MA 2000.
- Youngren, J.F., Keen, S., Tanner, C.J., Goldfine, I.D., & Houmard, J.A. Improvements in insulin receptor autophosphorylation following 7-day exercise training program. *ACSM 47<sup>th</sup> Annual Meeting*. Indianapolis, IN 2000.
- Wu, Z., **Tanner C. J.**, Pories, W.J., MacDonald, K., & Houmard, J.A. Effects of obesity and ethnicity on muscle fiber type. *ACSM 47<sup>th</sup> Annual Meeting*. Indianapolis, IN 2000.
- Cortright, R.N., **Tanner, C.J.**, & Koves, T.R. An interactive game in skeletal muscle bioenergetics. *ACSM 47<sup>th</sup> Annual Meeting*. Indianapolis, IN 2000.
- Buckalew, E.L., **Tanner, C.J.**, Validation trials of a sensormedics Vmax229 metabolic measurement system. *SEACSM 28th Annual Meeting*. Charlotte, NC 2000.
- Tanner, C.J.**, Moreland, M.R., Baker, J.T., Cortright, R.N., & Houmard, J.A. Effect of seven days of endurance training on insulin action in middle-aged men. *ACSM 46<sup>th</sup> Annual Meeting*. Seattle, WA 1999.
- Tanner, C.J.**, Moreland, M.R., Baker, J.P., Mehta, P.M., & Houmard, J.A. Effect of seven days of endurance training on insulin action in middle-aged men. *SEACSM 27<sup>th</sup> Annual Meeting*. Norfolk, VA 1999.
- Noland, R.C., Baker, J.T., Boudreau, S.R., **Tanner, C.J.**, Hickner, R.C., McCammon, M.R., & Houmard, J.A. Effects of intense swim training on plasma leptin concentration in male and female athletes. *SEACSM 27<sup>th</sup> Annual Meeting*. Norfolk, VA 1999.
- MacDonald, K., Hickner, R.C., Houmard, J.A., Dohm, L.G., Hyatt, A., **Tanner, C.J.**, Chapman, W., & Pories, W. Effect of gastric bypass and gastric banding surgery on insulin action. *13th International Symposium on Obesity Surgery; 4th Congress of the International Federation for the Surgery of Obesity (IFSO)*. Salzburg, Austria 1999.
- Boudreau, S.R., Baker, J.T., Noland, R.C., **Tanner, C.J.**, McCammon, M.R., Hickner, R.C., & Houmard, J.A. Impact of intense swim training on plasma leptin concentration in men and women. *North Carolina Institute of Nutrition Symposium*, 1998.
- Tanner, C.J.**, O'Neill, S.D., Morgan, L.J., Dohm, L.G., & Hickey, M.S. Insulin signaling in human insulin resistance: Minimal model vs. Euglycemic clamp. *SEACSM 25th Annual Meeting*. Atlanta, GA 1997.
- Shaw, C.D., **Tanner, C.J.**, Morgan, L.J., Houmard, J.A., & Hickey, M.S. Activation of phosphatidylinositol 3-kinase in-vivo: Relation to insulin action, fiber type, and body fat. *SEACSM 25th Annual Meeting*. Atlanta, GA 1997.

Cory, K.A., **Tanner, C.J.**, Morgan, L.J., Tripp, B.L., Dohm, L.G., Barakat, H.A., Considine, R.V., Houmard, J.A., Caro, J.F., & Hickey, M.S. Effect of weight loss and subsequent exercise training on serum leptin levels in obese humans. *SEACSM 25th Annual Meeting*. Atlanta, GA 1997.

**Tanner, C.J.**, Hickey, M.S., Houmard, J.A., & Israel, R.G. Insulin signaling in human insulin resistance: Time course study; minimal model. *2nd Annual Graduate Student Research Symposium*. East Carolina University, Greenville, NC 1996.

**(Submitted Abstracts/Presentations in Review)**

Thompson, B.L., Houmard, J.A., and **Tanner, C.J.** Efficacy of the right-side hemiscan technique in total and regional body fat analysis using a GE Lunar Prodigy Advanced DXA. Submitted for May 25<sup>th</sup> 2008, American College of Sports Medicine, 55<sup>th</sup> annual meeting.

Bikman, B.T., Zheng, D., Pories, W., Chapman, W., Pender, J., Bowden, R., Reed, M., Houmard, J.A., **Tanner, C.J.**, Dohm, G.L. Insulin Sensitivity Improves After Gastric-Bypass in the Obese. Submitted for June 6<sup>th</sup> 2008, American Diabetes Association 68<sup>th</sup> annual scientific sessions.

Bateman, L.A., Slentz, C.A., Willis, L.H., Blackburn, T., Shields, T., **Tanner, C.J.**, Houmard, J.A., and Kraus, W.E. Inactivity and Exercise (Aerobic versus Resistance) Effects on Liver and Visceral Fat. Submitted for June 6<sup>th</sup> 2008, American Diabetes Association 68<sup>th</sup> annual scientific sessions.

Slentz, C.A., Houmard, J.A., **Tanner, C.J.**, Johnson, J., Bateman, L.A., Duscha, B., and Kraus, W.E. Effects of Exercise Amount and Intensity on the Bergman Minimal Model Derived Disposition Index – from STRRIDE a Randomized, Controlled Clinical Trial. Submitted for June 6<sup>th</sup> 2008, American Diabetes Association 68<sup>th</sup> annual scientific sessions.

**GRADUATE STUDENTS**

**Thesis Committee Member**

1. Jason Berggren                      Committee Member    Graduate Thesis            Completed, 2001  
“Insulin-Stimulated Glucose Transport in Human Skeletal Muscle Cell Culture; Endurance Trained Versus Sedentary”
2. James McGehee.                      Committee Member    Graduate Thesis            Completed, 2002  
“Popular methods of estimating lactate threshold currently used by endurance athletes”
3. Robert Gray                              Committee Member    Graduate Thesis            Completed, 2002  
“The effects of weight loss on fiber type and intramuscular triglyceride content”
4. Christopher Westercamp              Committee Member    Graduate Thesis            Completed, 2003

“The effects of angiotensin converting enzyme (ACE) inhibition on nuclear proliferation and hypertrophy in overloaded skeletal muscle”

5. Christopher Evans            Committee Member    Graduate Thesis        Completed, 2004  
“The effects of seven days of training on NOS-dependent nutritive exchange in aged men”

6. Melissa Janiec                Committee Member    Graduate Thesis        Completed, 2006  
“The effects of ten days of endurance exercise training on whole body fat oxidation in lean and obese women”

7. Tykeeta Summers            Committee Member    Graduate Thesis        Proposed, 2007

### **Graduate Project Mentor**

1. Brandon Thompson          Project Mentor        Graduate Project        Proposed, 2007  
“Efficacy of the Dual-energy X-ray Absorptiometry (DXA) hemiscan technique in whole and regional body composition analysis”

### **PERSONAL INFORMATION**

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