# Joshua F. Yarrow, Ph.D., CSCS

**Birthplace: Aurora, Illinois**
**Citizenship: USA**


Work Address
VA Medical Center
1601 SW Archer Road
Research 151
Gainesville, FL 32608
Office: (352) 376-1611 x 6477
Cell: (352) 256-8326
Email: jfyarrow@ufl.edu

Home Address
6206 SW 8th Lane
Gainesville, FL 32607


## EDUCATION

**10/2009** **Postdoctoral Training**
Malcom Randall VA Medical Center
University of Florida, Gainesville, FL
Department of Applied Physiology & Kinesiology
Mentor: Stephen E. Borst, PhD

**12/2006** **Doctor of Philosophy**
University of Florida, Gainesville, FL
Department of Applied Physiology & Kinesiology
Concentration: Sports Medicine/Athletic Training
Minor: Human Nutrition
Co-Mentors: Lesley J. White, PhD
Paul A. Borsa, PhD

**05/2002** **Master of Science**
Arizona State University - East, Mesa, AZ
Department of Exercise & Wellness
Mentor: Charles B. Corbin, PhD

**05/2000** **Bachelors of Science**
Arizona State University, Tempe, AZ
Department of Kinesiology

## PROFESSIONAL EXPERIENCE

**02/2011-present** **Health Scientist – GS-13**
Malcolm Randall VA Medical Center, Gainesville, FL

**10/2009-present** **Courtesy Assistant Scientist**
University of Florida, Gainesville, FL
Department of Applied Physiology & Kinesiology

**10/2009-02/2011** **Research Physiologist – GS-11**
Malcolm Randall VA Medical Center, Gainesville, FL
Geriatric Research, Education and Clinical Center (GRECC)

**12/2006-10/2009** **Postdoctoral Associate**
Malcom Randall VA Medical Center, Gainesville, FL
University of Florida, Gainesville, FL
Department of Applied Physiology & Kinesiology

**05/2006-09/2009** **WOC Research Associate**
Malcolm Randall VA Medical Center, Gainesville, FL
Geriatric Research, Education and Clinical Center (GRECC)

**09/2003-05/2006** **Research Assistant**
University of Florida, Gainesville, FL
Department of Exercise & Sports Sciences
Applied Human Physiology Laboratory

**09/2003-05/2006** **Research Assistant**
University of Florida, Gainesville, FL
Department of Exercise & Sports Sciences
Sports Medicine Research Laboratory

**08/2002-05/2006** **Instructor**
University of Florida, Gainesville, FL
Alan C. Moore Sports & Fitness Program

**09/2001-08/2002** **Assistant Director Performance Enhancement Program**
Phoenix Suns Athletic Club – Phoenix, AZ

**08/2001-05/2002** **Graduate Teaching Assistant**
Arizona State University – East, Mesa, AZ
Department of Exercise & Wellness

## PEER-REVIEWED MANUSCRIPTS

Ye, F., McCoy, S.C., Ross, H.H., Bernardo, J.A., Beharry, A.W., Senf, S.M., Judge, A.R., Beck, D.T., Conover, C.F., Cannady, D.F., Smith, B.K., **Yarrow, J.F.,** and Borst, S.E. (In Review). Transcriptional regulation of myotrophic actions by testosterone and trenbolone on androgen-responsive muscle. *Steroids – In Review*.
***Impact factor: 2.739***

Borst, S.E., **Yarrow, J.F.,** Conover, C.F., Nseyo, U., Mueleman, J.R., Braith, R.W., Beck, D.T., Martin, J.S., Morrow, M., Roessner, S., Beggs, L.A., McCoy, S.C., Cannady, D.F., and Shuster, J. (In Review). Combined testosterone and finasteride administration in older hypogonadal men. *American Journal of Physiology – Endocrinology and Metabolism – In Review.*
***Impact factor: 4.828***

**Yarrow, J.F.,** Conover, C.F., Beggs, L.A., Beck, D.T., Otzel, D., Baelez, A., Combs, S.M., Miller, J.R., Aguirre, J.I., Neuville, K.G., Williams, A.A., Conrad, B.P., Gregory, C.M., Wronski, T.J., Bose, P.K., and Borst, S.E. (In Review). Testosterone protects against bone and muscle loss in rodents following spinal cord injury. *Journal of Neurotrauma – In Review.*
***Impact factor: 4.771***

**Yarrow, J.F.,** Beck, D.T., Conover, C.F., Beggs, L.A., Cannady, D.F., and Borst, S.E. (In Review). Invalidation of a commercially available human 5α-dihydrotestosterone immunoassay. *Steroids – In Press.*
***Impact Factor: 2.739***

Beggs, L.A., Borst, S.E., and **Yarrow, J.F.** (2013). Testosterone regulates hepcidin. Comment re: Iron regulation by hepcidin. *Journal of Clinical Investigation (JCI)*. Online at: http://www.jci.org/eletters/view/67225#sec1.
***Impact factor: 14.689***

**Yarrow, J.F.,** and Borst, S.E. (2013). Differing cardiovascular risk between transdermal and intramuscular testosterone administration? Comment re: Testosterone therapy and cardiovascular events among men: a systematic review and meta-analysis of placebo-controlled randomized trials. *BMC Medicine*. 11, 108. Online at: http://biomedcentral.com/1741-7015/11/108/comments#1571696.
***Impact factor: 6.413***

**Yarrow, J.F.,** Beggs, L.A., Conover, C.F., McCoy, S.C., and Borst, S.E. (2012). Influence of androgens on circulating adiponectin in male and female rodents. *PLoS ONE.* 7(10), e47315.
***Impact factor: 4.244***

McCoy, S.C., **Yarrow, J.F.,** Conover, C.F., Borsa, P.A., Tillman, M.D., Conrad, B.P., Pingel, J.E., Wronski, T.J., Johnson, S.E., Kristinsson, H., Ye, F., Borst, S.E. (2012). 17β-hydroxyestra-4,9,11-trien-3-one (trenbolone) preserves bone mineral density in skeletally mature rats without prostate enlargement. *Bone*. 51(4), 667-673.
***Impact factor: 4.247***

Manini, T.M., **Yarrow, J.F.,** Buford, T., Clark, B.C., Conover, C.F., and Borst, S.E. (2012). Growth hormone/IGF-1 and cardiovascular responses to resistance exercise with blood flow restriction in young and old men. *Growth Hormone and IGF-1 Research*. 22(5), 167-172.
***Impact factor: 2.082***

**Yarrow, J.F.,** McCoy, S.C., Ferreira, A., Pingel, J.E., Conrad, B.P., Wronski, T.J., Williams, A.A., Borst, S.E., and Brown, M. (2012). A rehabilitation exercise program induces severe bone mineral deficits in estrogen deficient rats following extended disuse. *Menopause.* 19(11), 1267-1276.
***Impact factor: 3.131***

**Yarrow, J.F.,** McCoy, S.C., and Borst, S.E. (2012). Intracrine and Myotrophic Roles of 5α Reductase and Androgens: A Review. *Medicine & Science in Sports & Exercise.* 44(5), 818-826.
***Impact factor: 5.331***

**Yarrow, J.F.,** Conover, C.F., McCoy, S.C., Lipinska, J.A., Santillana, C.A., Hance, J.M., Cannady, D.F., VanPelt, T.D., Sanchez, J., Conrad, B.P., Pingel, J.E., Wronski, T.J., and Borst, S.E. (2011). 17β-hydroxyestra-4,9,11-trien-3-one (Trenbolone) exhibits tissue selective anabolic activity: Effects on muscle, bone, adiposity, hemoglobin, and prostate. *American Journal of Physiology – Endocrinology and Metabolism*. 300(4), E650-660.
***Impact factor: 4.828***

**Yarrow, J.F.,** Conover, C.F., Lipinska, J., Santillana, C., Wronski, T.J., and Borst, S.E. (2010). Methods to quantify sex steroid hormones in bone: Applications to the study of androgen ablation and administration. *American Journal of Physiology – Endocrinology and Metabolism.* 299(5), E841-847.
***Impact factor: 4.828***

**Yarrow, J.F.,** McCoy, S.C., White, L.J., and Borst, S.E. (2010). Training Augments Resistance Exercise Induced Elevation of Circulating Brain Derived Neurotrophic Factor (BDNF). *Neuroscience Letters*. 479(2), 161-165.
***Impact Factor: 2.146***

**Yarrow, J.F.,** McCoy, S.C., and Borst, S.E. (2010). Tissue selectivity and potential clinical applications of trenbolone (17β-hydroxyestra-4,9,11-trien-3-one): A potent anabolic steroid with reduced androgenic and estrogenic activity. *Steroids*. 75(6), 377-389.
***Impact Factor: 2.739***

Borst, S.E., Quindry, J.C., **Yarrow, J.F.,** Conover, C.F., and Powers, S.K. (2010). Testosterone administration induces protection against myocardial stunning. *Hormone and Metabolic Research*. 42(2), 122-129.
***Impact Factor: 2.168***

Parr, J.J., **Yarrow, J.F.,** Garbo, C.M., and Borsa, P.A. (2009). Symptomatic and functional responses to isokinetic versus isotonic eccentric exercise. *Journal of Athletic Training.* 44(5), 463-468.
***Impact Factor: 3.112***

**Yarrow, J.F.,** Conover, C.F., Purandare, A.V., Bhakta, A.M., Zheng, N., Conrad, B., Altman, M.K., Franz, S.E., Wronski, T.J., and Borst, S.E. (2008). Supraphysiological testosterone enanthate administration prevents bone loss and augments bone strength in gonadectomized male and female rats. *American Journal of Physiology – Endocrinology and Metabolism*. 295(5), E1213-1222.
***Impact factor: 4.828***

**Yarrow, J.F.,** Borsa, P.A., Borst, S.E., Sitren, H.S., Stevens, B.R., and White, L.J. (2008). Neuroendocrine responses and strength adaptations following eccentric-enhanced resistance training. *Journal of Strength and Conditioning Research*. 22(4), 1205-1214.
***Impact factor: 2.265***

Powers, M.E., **Yarrow, J.F.,** McCoy, S.C., and Borst, S.E. (2008). Growth hormone isoform responses to GABA ingestion at rest and following exercise. *Medicine & Science in Sports & Exercise*. 40(1), 104-110.
***Impact factor: 5.331***

**Yarrow, J.F.,** Borsa, P.A., Borst, S.E., Sitren, H.S., Stevens, B.R., and White, L.J. (2007). Neuroendocrine responses to an acute bout of eccentric-enhanced resistance exercise. *Medicine & Science in Sports & Exercise,* 39(6), 941-947.
***Impact factor: 5.331***

**Yarrow, J.F.,** Parr, J.J., White, L.J., Borsa, P.A., and Stevens, B.R. (2007). The effects of short-term alpha-ketoisocaproic acid supplementation on exercise performance: a randomized controlled trial. *Journal of the International Society of Sports Nutrition*. 4(2), 1-6.
***Impact factor: 2.016***

## MANUSCRIPTS IN PROGRESS

Beck, D.T., **Yarrow, J.F.,** Beggs, L.A., Otzel, D.M., Conover, C.F., Miller, J.R., Balaez, A., Combs, S.M., Zheng, N., Wronski, T.J., and Borst, S.E. Influence of aromatase inhibition on the bone protective effects of testosterone.

**Yarrow, J.F.,** Ye, F., Otzel, D.M., Baelez, A., Baligand, C., Keener, J.E., Lim, W., Vohra, R.S., Bose, P.K., and Vandenborne, K. Cancellous bone loss in a new atrophy model combining spinal cord injury and cast immobilization.

**Yarrow, J.F.,** Cannady, D.F., Conover, C.F., Beck, D., Martin, J., Morrow, M., Meuleman, J.R., Braith, R.W., and Borst, S.E. Testosterone administration and the regulation of bone turnover in hypogonadal elderly men.

Beggs, L.A., **Yarrow, J.F.,** Conover, C.F., Beck, D., Cannady, D.F., Morrow, M., Meuleman, J.R., and Borst, S.E. Regulation of the iron regulatory proteins hemojuvelin and hepcidin via a testosterone dependent pathway in hypogonadal elderly men.

## PUBLISHED ABSTRACTS

**Yarrow, J.F.,** Beggs, L.A., Conover, C.F., Meuleman, J.R., Beck, D.T., Morrow, M., and Borst, S.E. (2014). Testosterone stimulates red cell production independent of dihydrotestosterone. *Medicine & Science in Sports & Exercise*.

Otzel, D.M., Conover C.F., Beggs, L.A., Beck, D.T., Balaez, A., Combs, S.M., Miller, J.R., Ye, F., Aguirre, J.I., Neuville, K.G., Williams, A.A., Conrad, B.P., Gregory, C.M., Wronski, T.J., Bose, P.K., Borst, S.E., and **Yarrow, J.F.** (2014). Testosterone dose-dependently prevents bone and muscle loss in rodents following spinal cord injury. *Medicine & Science in Sports & Exercise*.

Borst, S.E., **Yarrow, J.F.,** Conover, C.F., Nseyo, U., Meuleman, J.R., Lipinska, J.A., Braith, R.W., Beck, D.T., Martin, J.S., Morrow, M., Roessner, S., Beggs, L.A., McCoy, S.C., Cannady, D.F., and Shuster, J.J. (2014). Musculoskeletal and prostate effects of combined testosterone and finasteride administration in older hypogonadal men. *Medicine & Science in Sports & Exercise*.

Conover, C.F., **Yarrow, J.F.,** Ye, F., Cannady, D.F., Shuster, J, and Borst, S.E. (2014). Incidence of low testosterone in a Veteran population. *Medicine & Science in Sports & Exercise*.

Beck, D.T., **Yarrow, J.F.,** Beggs, L.A., Otzel, D.M., Ye, F., Conover, C.F., Miller, J.R., Balaez, A., Combs, S.M., and Borst, S.E. (2014). Influence of aromatase inhibition on the bone protective effects of testosterone. *Medicine & Science in Sports & Exercise.*

Beggs, L.A., Ye, F., Beck, D.T., Otzel, D.M., Conover, C.F., Balaez, A., Miller, J.R., **Yarrow, J.F.,** and Borst, S.E. (2014). Testosterone prevents bone loss in skeletally-mature male rats subsequent to spinal cord injury. *Medicine & Science in Sports & Exercise*.

Ye, F., McCoy, S.C., Ross, H.H., Bernardo, J.A., Beharry, A.W., Senf, S.M., Judge, A.R., Beck, D.T., Conover, C.F., Cannady, D.F., Smith, B.K., **Yarrow, J.F.,** and Borst, S.E. (2014). Transcriptional regulation of myotrophic actions by testosterone and trenbolone on androgen responsive muscle. *Medicine & Science in Sports & Exercise*.

Balaez, A., Ye, F., Baligand, C., Borst, S.E., Keener, J.E., Lim, W., Vohra, R.S., Bose, P.K., Vandenborne, K.E., and **Yarrow, J.F.** (2014). Cancellous bone loss in a new atrophy model combining spinal cord injury and cast immobilization. *Medicine & Science in Sports & Exercise*.

Ye, F., McCoy, S.C., **Yarrow, J.F.,** Conover, C.F., Beck, D.T., Beggs, L.A., Beharry, A.W., Judge, A.R., Ross, H.H., Borsa, P.A., Tillman, M.D., Conrad, B.P., Pingel, J.E., Wronski, T.J., Johnson, S.E., Kristinsson, H.G., Borst, S.E. (2013). Effect of trenbolone enanthate on protein degradation in levator ani/bulbocavernosus (LABC) muscle in orchiectomized rats. *FASEB J*.

Beck, D.T., **Yarrow, J.F.,** McCoy, S.C., Beggs, L.A., Balaez, A., Combs, S.M., Miller, J.R., Conover, C.F., Borst, S.E. (2013). The combined effects of anastrozole and testosterone or trenbolone on prostate and levator ani-bulbocavernosus mass. *FASEB J*.

Beggs, L.A., Beck, D.T., Conover, C.F., Ye, F., Combs, S.M., Miller, J.R., Balaez, A., Neuville, K.G., Wronski, T.J., Bose, P., Borst, S.E., **Yarrow, J.F.** (2013). Testosterone treatment prevents spinal cord injury-induced bone loss in male rats. *FASEB J*.

Beggs, L.A., **Yarrow, J.F.,** McCoy, S.C., Conover, C.F., and Borst, S.E. (2012). Adiponectin is negatively correlated with testosterone in male and female rats. *Medicine & Science in Sports & Exercise.* 44(5), S548.

**Yarrow, J.F.,** McCoy, S.C., Ferreira, J.A., Pingel, J.E., Conrad, B.P., Wronski, T.J., Williams, A.A., Borst, S.E., and Brown, M. (2012). Estrogen is required for mechanical loading induced restoration of bone following disuse. *Medicine & Science in Sports & Exercise.* 44(5), S520.

Beggs, L.A., **Yarrow, J.F.,** McCoy, S.C., Conover, C.F., and Borst, S.E. (2012). The effects of supraphysiologic testosterone administration on serum adiponectin. *Southeast American College of Sports Medicine*.

**Yarrow, J.F.,** Brown, M., McCoy, S.C., Conover, C.F., Pingel, J.E., Wronski, T.J., and Borst, S.E. (2011). Estrogen is required for reambulation induced restoration of bone following hindlimb unloading of ovariectomized rats. *Medicine & Science in Sports & Exercise*. 43(5), S171.

McCoy, S.C. **Yarrow, J.F.,** Conover, C.F., Pingel, J.E., Wronski, T.J., Lipinska, J.A., Santillana, C.A., and Borst, S.E. (2011). Androgens, but not mechanical loading, attenuate bone loss and high-turnover osteopenia in orchiectomized rats. *Medicine & Science in Sports & Exercise*. 43(5), S76.

Borst, S.E., **Yarrow, J.F.,** Conover, C.F., McCoy, S.C., Sanchez, J., VanPelt, T.D., Cannady, D.F., and Bose, P.K. (2011). Swim test reveals that estriol, but not estrone, preserves memory in ovariectomized female rats. *Medicine & Science in Sports & Exercise*. 43(5), S542.

**Yarrow, J.F.,** White, L.J., McCoy, S.C., and Borst, S.E. (2010). Resistance exercise elevates circulating brain derived neurotrophic factor (BDNF) concentrations in humans. *Medicine & Science in Sports & Exercise.* 42(5), S35.

McCoy, S.C., **Yarrow, J.F.,** Conover, C.F., Lipinska, J.A., Santillana, C., and Borst, S.E. (2010). Trenbolone enanthate has a novel spectrum of action in muscle, adipose and prostate tissue. *Medicine & Science in Sports & Exercise*. 43(5), S269.

Manini, T., Clark, B., **Yarrow, J.,** Borst, S. (2010). Acute systemic growth responses to low intensity blood flow restricted resistance exercise in old men. *Medicine & Science in Sports & Exercise*. 43(5), S29.

**Yarrow, J.F.,** Conover, C.F., Lipinska, J.A., Santillana, C., Franz, S.E., Wronski, T.J., and Borst, S.E. (2010). Trenbolone (17B-hydroxyestra-4,9,11-trien-3-one) Protects Against Bone Loss in Gonadectomized Male Rodents. *FASEB J*. 24, 630.1

McCoy, S.C., **Yarrow, J.F.,** Conover, C.F., Lipinska, J.A., Santillana, C., and Borst, S.E. (2010). Intramuscular testosterone and trenbolone enanthate elevates hemoglobin concentrations. *FASEB J*. 24, 997.7.

Lipinska, J.A., Conover, C.F., **Yarrow, J.F.,** McCoy, S.C., Santillana, C.A., and Borst, S.E. (2010). Supraphysiological testosterone administration alters renal 25-hydroxyvitamin D-3 1α-hydroxylase protein expression in female rodents. *FASEB J*. 24, lb624.

**Yarrow, J.F.,** Conover, C.F., Hance, J.M., Franz, S.E., Conrad, B., Zheng, N., Wronski, T.J., and Borst, S.E. (2009). Supraphysiological testosterone-enanthate augments the biomechanical characteristics of bone by altering cortical bone dimensions. *Medicine & Science in Sports & Exercise*. 41(5), S56.

Manini, T.M., Clark, B.C., Skidmore, F., **Yarrow, J.,** and Borst, S. (2009). Acute systemic growth responses to low intensity blood flow restricted resistance exercise. *Medicine & Science in Sports & Exercise*. 41(5), S301.

Manini, T., Clark, B., Skidmore, F., **Yarrow, J.,** and Borst, S. (2008). Acute responses to blood flow restricted exercise. *APS Intersociety Meeting – The Integrative Biology of Exercise – V.* 32, 4.13.

**Yarrow, J.F.,** Conrad, B., Conover, C.F., Zheng, N., and Borst, S.E. (2008). Testosterone administration augments bone strength and mass in hypogonadal rats. *Medicine & Science in Sports & Exercise.* 40(5), S82.

**Yarrow, J.F.,** Conover, C.F., Conrad, B., Altman, M.K., Franz, S.E., Zheng, N., Wronski, T.J., and Borst, S.E. (2008). Anabolic effects of testosterone in bone of gonadectomized male and female rats. *FASEB J*. 231, 750.19.

Borst, S.E., Quindry, J.C., **Yarrow, J.F.,** Conover, C.F., and Powers, S.K. (2008). Testosterone administration induces protection against global myocardial ischemia. *FASEB J.* 422, 1188.5

Borsa, P.A., Parr, J.J., **Yarrow, J.F.,** and Garbo, C.M. (2008). Symptomatic and functional responses to isotonic versus isokinetic eccentric exercise. *Medicine & Science in Sports & Exercise*. 40(5), S291.

Parr, J.J., **Yarrow, J.F.,** Garbo, C.M., and Borsa, P.A. (2008). Functional deficits following isokinetic versus overloaded isotonic eccentric resistance exercise. *Journal of Athletic Training*. 43, 3S.

Castellano, V., Patel, D.I., **Yarrow, J.F.,** McCoy, S.C., Blazina, A., and White, L.J. (2007). Acute and chronic exercise influence serum brain-derived neurotrophic factor in multiple sclerosis. *FASEB J.* 21, 957.4.

**Yarrow, J.F.,** Borsa, P.A., Borst, S.E., Sitren, H.S., Stevens, B.R., and White, L.J. (2007). Muscular strength and endurance responses to eccentric-enhanced resistance training. *Medicine & Science in Sports & Exercise.* 39(5).

**Yarrow, J.F.,** Nieves, Jr.C., Sitren, H.S., White, L.J. and Stevens, B.R. (2006). Branched-chain ketoacid pharmacokinetic responses to orally consumed L-leucine metabolite alpha-ketoisocaproic acid in humans. *Journal of the International Society of Sports Nutrition*. 3(1), S24.

**Yarrow, J.F.,** Stevens, B.R., Parr, J.J., Borsa, P.B., and White, L.J. (2005). The effects of ketoisocaproic acid alone on muscular endurance. *Medicine & Science in Sports & Exercise.* 37(5), S348.

**Yarrow, J.F.** and Burns, T.W. (2004). Static stretching inhibits maximal muscular endurance. *Medicine & Science in Sports & Exercise.* 36(5), S353.

Powers, M.E., Borst, S.E., McCoy, S.C., Conway, R., and **Yarrow, J.** (2003). The effects of gamma aminobutyric acid on growth hormone secretion at rest and following exercise. *Medicine & Science in Sports & Exercise.* 35(5), S271.

Schneider, M.R., Landers, D.M., Phillips, W.T., Arent, S.M., and **Yarrow, J.F.** (2003). Effects of psyching on peak force production in adolescent athletes. *Medicine & Science in Sports & Exercise.* 35(5), S140.

## CONFERENCE PRESENTATIONS

### *NATIONAL*

**Yarrow, J.F.** (2012). Bone protective effects of SARMs in hypogonadal elderly men. *American College of Sports Medicine Conference*. San Francisco, CA. May, 2012.

**Yarrow, J.F.** (2012). Pharmacological augmentation of musculoskeletal tissue. *Southeast American College of Sports Medicine Conference.* Jacksonville, FL. February, 2012.

**Yarrow, J.F.,** White, L.G., McCoy, S.C., and Borst, S.E. (2010). Resistance exercise elevates circulating brain derived neurotrophic factor (BDNF) concentrations in humans. *American College of Sports Medicine Conference*. Baltimore, MD. May, 2010.

**Yarrow, J.F.,** Conover, C.F., Hance, J.M., Franz, S.E., Conrad, B., Zheng, N., Wronski, T.J., and Borst, S.E. (2009). Supraphysiological testosterone-enanthate augments the biomechanical characteristics of bone by altering cortical bone dimensions. *American College of Sports Medicine Conference.* Seattle, WA. May, 2009.

**Yarrow, J.F.,** Conrad, B., Conover, C.F., Zheng, N., and Borst, S.E. (2008). Testosterone administration augments bone strength and mass in hypogonadal rats. *American College of Sports Medicine Conference.* Indianapolis, IN. May, 2008.

**Yarrow, J.F.,** Conover, C.F., Conrad, B., Altman, M.K., Franz, S.E., Zheng, N., Wronski, T.J., and Borst, S.E. (2008). Anabolic effects of testosterone in bone of gonadectomized male and female rats. *Experimental Biology*. San Diego, CA. April, 2008.

**Yarrow, J.F.,** Stevens, B.R., Parr, J.J., Borsa, P.A., and White, L.J. (2005). The effects of ketoisocaproic acid alone on muscular endurance. *American College of Sports Medicine Conference*. Nashville, TN. June, 2005.

**Yarrow, J.F.** The efficacy and safety of creatine supplementation in athletes. (2003). *Athletic Training Research Conference.* University of Florida, Gainesville, FL. April, 2003.

***LOCAL***

**Yarrow, J.F.** (2013). 5α Reductase and Aromatase: Mediators of Androgen Action in Bone, Muscle, and Fat? D.H. Barron Reproductive and Perinatal Biology Research Seminar, Perinatal Biology Research Program and the Perinatal Outcomes Research Center, University of Florida, Gainesville, FL. September 2013.

Balaez, A., Beck, D.T., **Yarrow, J.F.,** McCoy, S.C., Beggs, L.A., Combs, S.M., Miller, J.R., Conover, C.F., and Borst, S.E. (2013). The combined effects of anastrozole and testosterone or trenbolone on prostate and levator ani-bulbocavernosus mass. AMSA Research Symposium, University of Florida, Gainesville, FL. March 2013.

**Yarrow, J.F.** (2013). Sex-Hormone Mediated Protection Against Bone and Muscle Loss. Muscle Biology Seminar Series. University of Florida, Gainesville, FL. March, 2013.

Balaez, A., Beck, D.T., **Yarrow, J.F.,** McCoy, S.C., Beggs, L.A., Combs, S.M., Miller, J.R., Conover, C.F., and Borst, S.E. (2013). The combined effects of anastrozole and testosterone or trenbolone on prostate and levator ani-bulbocavernosus mass. FURC, University of Florida, Gainesville, FL. February 2013.

Cannady, D.F., **Yarrow, J.F.,** Conover, C.F., and Borst, S.E. (2012). The relationship between sclerostin, 17β-estradiol, and testosterone in men over age 60. VA Research Day. Malcolm Randall VA Medical Center, Gainesville, FL. May, 2012.

Cannady, D.F., **Yarrow, J.F.,** Conover, C.F., and Borst, S.E. (2012). The relationship between sclerostin, 17β-estradiol, and testosterone in men over age 60. University of Florida, Undergraduate Research Symposium. March, 2012.

**Yarrow, J.F.** (2011). Sex-Hormone Mediated Protection Against Bone and Muscle Loss. Center for Exercise Science Seminar Series. University of Florida, Gainesville, FL. September, 2011.

**Yarrow, J.F.,** Brown M., McCoy, S.C., Conover, C.F., Pingel, J.E., Wronski, T.J., and Borst, S.E. (2011). Estrogen is Required for Reambulation Induced Restoration of Bone Following Hindlimb Unloading of Ovariectomized Rats. VA Research Day. Malcolm Randall VA Medical Center, Gainesville FL. May, 2011.

**Yarrow, J.F.,** Brown M., McCoy, S.C., Conover, C.F., Pingel, J.E., Wronski, T.J., and Borst, S.E. (2011). Estrogen is Required for Reambulation Induced Restoration of Bone Following Hindlimb Unloading of Ovariectomized Rats. University of Florida, Spotlight on Research in Aging. April, 2011.

**Yarrow, J.F.** (2009). Pharmacological Strategies to Enhance Skeletal Muscle Mass and Bone Mineral Density. University of Florida, Aging & Rehabilitation Interdisciplinary Research Seminar Series. October, 2009.

**Yarrow, J.F.** (2009). Augmenting Skeletal Muscle Mass and Bone Mineral Density. Invited Seminar Series. Southern Methodist University, Department of Applied Physiology and Wellness, Dallas, TX. April, 2009.

**Yarrow, J.F.** (2008). Trick O' Treat: Testosterone and the Prevention of Sarcopenia and Osteopenia. Invited Nutritional Sciences Seminar Series. University of Florida, Department of Food Science and Human Nutrition, Gainesville, FL. October, 2008.

**Yarrow, J.F.,** Conover, C.F., Conrad, B., Altman, M.K., Franz, S.E., Zheng, N., Wronski, T.J., and Borst, S.E. (2008). Anabolic effects of testosterone in bone of gonadectomized male and female rats. VA Research Day. Malcolm Randall VA Medical Center, Gainesville FL. May, 2008.

Borst, S.E., Quindry, J.C., **Yarrow, J.F.,** Conover, C.F., and Powers, S.K. (2008). Testosterone administration induces protection against global myocardial ischemia. VA Research Day. Malcolm Randall VA Medical Center, Gainesville, FL. May, 2008.

Manini, T.M., Clark, B.C., Skidmore, F., **Yarrow, J.F.,** and Borst, S.E. (2008). Acute responses to blood flow restricted exercise. Institute on Aging Seminar Series. University of Florida, Gainesville, FL. April, 2008.

**Yarrow, J.F.** Can testosterone prevent sarcopenia and osteopenia. (2007). GRECC Seminar Series. Malcolm Randall VA Medical Center, Gainesville, FL. November, 2007.

**Yarrow, J.F.** Endocrine responses to resistance exercise. (2003). Anatomy and Physiology Seminar. Kapi'olani Community College, Honolulu, HI. July, 2003.

## RESEARCH FUNDING SUMMARY

| Role | Total Direct Costs Awarded To-Date |
|---|---|
| Principal Investigator | $704,392 |
| Co-Investigator | $1,623,322 |
| **TOTALS** | **$2,327,714** |

## ACTIVE RESEARCH FUNDING

Bone Regenerative Effects of Anti-Sclerostin Antibody After Spinal Cord Injury
VA RR&D SPiRE
Role: PI
Direct Costs: $200,000
Status: Pending (2/1/14-1/31/16)

-The purpose of this study is to develop of model of chronic spinal cord injury (SCI)-induced rodent bone loss and to examine the efficacy of a novel osteoanabolic agent (i.e., sclerostin antibody) in regenerating bone within this chronic SCI model.

Testosterone and Spinal Cord Injury
VA RR&D CDA - 2
Role: PI
Direct Costs: $504,392
Status: Active (2/1/11-1/31/14)

-The purpose of this proposal is to determine the role that testosterone deficits play in the loss of bone mineral density and skeletal muscle mass following spinal cord injury and to determine whether exogenous testosterone administration enhances the known protective effects of quadrupedal treadmill stepping exercise in a rodent spinal cord injury model.

Bone Content and Metabolism of Sex Steroid Hormones
VA RR&D Merit
PI: Borst
Role: Co-I
Direct Costs: $884,622
Status: Active (10/1/09-10/30/13)

-The purpose of this proposal is to determine the skeletal protective effects of endogenous sex-steroids in male and female bone by evaluating the serum and bone concentrations of androgens and estrogens across the lifespan.

## GRANTS CURRENTLY IN REVIEW

Higher-Than-Replacement Testosterone Plus Finasteride After SCI
VA RR&D Merit
Role: PI
Direct: $1,100,000
Status: In Review

-The purpose of this study is to determine whether *higher-than-replacement* testosterone plus finasteride is able to safely regenerate musculoskeletal integrity, neuromuscular function, and improve body composition in hypogonadal men with motor incomplete spinal cord injury (SCI).

Health Risks of Low Testosterone and Testosterone Administration in Male Veterans
VA HSR&D Merit
PI: Jia/Borst
Role: Co-Investigator
Direct Costs: $578,771
Status: Priority Score = 278, In Revision

-The purpose of this study is to determine the health risks associated with (1) low vs. normal serum testosterone and (2) long-term TRT vs. no treatment in the nationwide population of hypogonadal male Veterans aged ≥ 40.

5-Alpha Reductase Inhibitors to Improve Testosterone Therapy in Older Men
NIH R01
PI: Borst
Role: Co-Investigator
Direct: $1,100,000
Status: In Review

-The purposes of this study are to determine 1) whether finasteride or dutasteride (FDA-approved 5alpha-reductase inhibitors) prevent prostate enlargement/lower urinary symptoms resulting from *higher-than-replacement* testosterone, 2) potential biomarkers that predict the magnitude of increase in hematocrit resulting from testosterone administration, and 3) the effects of testosterone administration on arterial flow-mediated dilation.

Therapeutic Strategies to Promote Musculoskeletal Recovery After SCI
Craig H. Neilsen Foundation, Neilsen Postdoctoral Fellowship
PI: Ye
Role: Mentor
Direct Costs: $200,000
Status: In Review

-The purpose of this study is to evaluate a combination pharmacologic strategy plus mechanical loading as a means to regenerate musculoskeletal integrity and neuromuscular function in a rodent model of severe contusion spinal cord injury (SCI).

Therapeutic Strategies to Promote Musculoskeletal Recovery After SCI
Paralyzed Veterans Association, Postdoctoral Fellowship
PI: Ye
Role: Mentor
Direct Costs: $150,000
Status: In Review

-The purpose of this study is to evaluate a combination pharmacologic therapy (testosterone + finasteride) as an adjuvant to quadrupedal treadmill exercise or motorized bicycle training as a means of regenerating musculoskeletal integrity and neuromuscular function in a rodent spinal cord injury (SCI) model.

## COMPLETED RESEARCH FUNDING

5-Alpha Reductase and Anabolic Effects of Testosterone
VA Clinical R&D Merit Award
PI: Borst
Role: Co-I
Direct Costs: $654,700
Status: Completed

-The purpose of this study is to determine the roles of 5-alpha reductase as mediators of specific anabolic and adverse effects of testosterone. We will also evaluate the combination of higher-dose testosterone plus finasteride as a safe and effective means for treating and preventing sarcopenia and osteopenia in older hypogonadal men in a clinical trial setting.

## SUPPLEMENTAL/COMPETITIVE EQUIPMENT FUNDING

Department of Veterans Affairs Shared Equipment Evaluation Program (ShEEP)
Date: FY13
Item: Leica M822 F20 Surgical Microscope System w/ Evolution HD Recorder
Direct Costs: $66,980

North Florida/South Georgia (NF/SG) VA Logistics Acquisition
Date: FY13
Item: Hologic Discovery A Bone Densitometer (DXA)
Direct Costs: $75,000

Department of Veterans Affairs, VA Central Office (VACO) Request
Date: FY11
Item: Microphotonics Skyscan 1172 X-Ray μCT
Direct Costs: $289,940

Department of Veterans Affairs, VACO Request
Date: FY11
Item: BD Biosciences C6 Flow Cytometer and Workstation
Direct Costs: $45,000

Department of Veterans Affairs, VACO Request
Date: FY11
Items: sRANKL ELISA, Osteocalcin (1-43/49) ELISA, and Vitamin D 1,25- (OH)2 EIA
Direct Costs: $27,953

Department of Veterans Affairs, VACO Request
Date: FY11
Items: Qiagen QIA Cube, Tissue Lyser, and Tissue Analyzer
Direct Costs: $22,881

Department of Veterans Affairs, VACO Request
Date: FY11
Items: Crosslaps ELISA (15) and Bone TRAP ELISA (15)
Direct Costs: $24,078

Department of Veterans Affairs, VACO Request
Date: FY11
Items: Infinite Horizons Spinal Cord Impactor System
Direct Costs: $19,500

Department of Veterans Affairs, VACO Request
Date: FY11
Item: Fisher Scientific Ultra-Low Freezer
Direct Costs: $10,807

Department of Veterans Affairs, VACO Request
Date: FY11
Items: iPrecio Management System and Refillable Drug Pumps
Direct Costs: $4050

Department of Veterans Affairs, VACO Request
Date: FY11
Item: Chromatography Refrigerator
Direct Costs: $3745

| | **Total Supplemental Funds Awarded To-Date** |
|---|---|
| Supplemental Equipment Funds | $537,903 |
| Supplemental (Perishable) Supply Funds | $52,031 |
| **TOTAL** | **$589,934** |

## VA SERVICE

**2013 – present** VA Scientific Projects Committee (SPC)
**2012 – present** VA Research Facility and Space Utilization Committee (RFSUS)
**2011 – 2013** Mentor to Darren Beck, PhD - VA Special Fellowship in Advanced Geriatrics

## ADVISING AND MENTORING

***Postdoctoral Advisor***

| **Name** | **Date** | **Degree** | **Current Status** |
|---|---|---|---|
| Darren T. Beck | 2011-2013 | Postdoctoral | Assistant Professor – University of Rhode Island |

***Thesis & Dissertation Chair/Co-Chair***

| **Name** | **Date** | **Degree** | **Current Status** |
|---|---|---|---|
| Darryl F. Cannady | 2010-2012 | B.S.* | University of Miami College of Medicine |

***Thesis & Dissertation Committee Member***

| **Name** | **Date** | **Degree** | **Current Status** |
|---|---|---|---|
| Luke A. Beggs | 2011-present | Ph.D. | University of Florida |

***Graduate Research Advisor***

| **Name** | **Date** | **Degree** | **Current Status** |
|---|---|---|---|
| Julie Miller | 2013-present | M.S. | University of Florida |

***Undergraduate Research Advisor***

| Name | Date | Degree | Current Status |
|---|---|---|---|
| Ean Phillips | 2013-present | B.S. | University of Florida |
| Alejandra Gonzalez | 2013 | B.S. | Graduated |
| Sarah Combs | 2012-2013 | B.S. | University of Florida |
| Alexander Baelez | 2012-2013 | B.S. | Employed at VA Hospital |
| Julie Miller | 2012-2013 | B.S. | Graduate School – University of Florida |
| Darryl F. Cannady* | 2010-2012 | B.S. | University of Miami College of Medicine |
| Joshua Sanchez | 2010-2012 | B.S. | Palmer College of Chiropractic Medicine |

**Graduated with highest honors (Summa Cum Laude) after completing honors thesis*

## AD HOC JOURNAL REVIEWER

*Applied Physiology, Nutrition, and Metabolism*
*Asian Journal of Sports Medicine*
*Clinical Ophthalmology*
*Current Psychopharmacology*
*Drug Design, Development and Therapy*
*European Journal of Applied Physiology*
*Experimental Gerontology*
*International Journal of Sports Medicine*
*Journal of Endocrinology*
*Journal of Physical Education and Sport Management*
*Journal of Psychiatric Research*
*Journal of Sport Science & Medicine*
*Medicine & Science in Sports & Exercise*
*Muscle and Nerve*
*Neuroscience Letters*

## TEACHING EXPERIENCE

**University of Florida (Course Director)**
- PEM 1131 Beginning Techniques in Weight Training
- PEM 1101 Conditioning
- PEM 2131 Advanced Techniques in Weight Training
- PEM 2930 Flag Football

**University of Florida (Co-Course Director)**
- APK 5946 Ergogenic Aids

**University of Florida (Guest Lecturer)**
- APK 3113 Principles of Strength and Conditioning

**Arizona State University – East (Co-Course Director)**
- EXW 100 Introduction to Health & Wellness

## PROFESSIONAL CERTIFICATIONS

Certified Strength and Conditioning Specialist (CSCS) – NSCA
Cardio Pulmonary Resuscitation (CPR) – American Heart Association
Certified Phlebotomist – MedTexx

## PROFESSIONAL AFFILIATIONS

American College of Sports Medicine – Member
International Society of Bone Morphometry – Member
National Strength and Conditioning Association - Member

## AWARDS & RECOGNITIONS

Grinter Fellowship – University of Florida
Golden Key National Honor Society – Lifetime Member
Outstanding Ratings Certificate – North Florida/South Georgia Veterans Health System

## RESEARCH SKILLS

***HUMAN***
Isokinetic, isotonic, and isometric muscular strength, power, and endurance testing; bioelectrical impedance and skinfold body composition analysis; dietary analysis techniques; venipuncture blood sampling.

***ANIMAL***
Small animal surgery; venous and arterial blood sampling and analysis; intramuscular, subcutaneous, and intraperitoneal drug administration; animal behavioral analysis.

***BIOCHEMISTRY***
ELISA, EIA, and RIA analyses; western blotting; spectrophotometry; hormone and protein extraction from soft tissue and bone; bone histomorphometry; muscle and spinal cord histology.

***IMAGING***
Microcomputed tomography (μCT) analysis of bone and soft tissue morphometry, peripheral quantitative computerized tomography (pQCT) of bone mineral characteristics, dual x-ray absorptiometry (DXA) analysis of body composition.

***COMPUTER***
Proficient in Microsoft Word, Excel, and PowerPoint; SPSS; EndNote; WebCT Vista; GraphPad Prism; Blackboard; Internet Applications.