

## CURRICULUM VITAE

**Darryn Scott Willoughby**  
501 Aspen Incline Drive  
Hewitt, TX 76643  
Tel: 254-315-4173  
E-mail: [dwilloughby@umhb.edu](mailto:dwilloughby@umhb.edu)



### DEGREES

#### **Post-Doctoral Training**

University of Southern Maine, Department of Immunology, 1996-1998;  
Molecular Biology and Immunology, Mentor, Dr. Stephen Pelsue

#### **Doctor of Philosophy**

Texas A&M University, 1993; Exercise Physiology: specialization in neuromuscular exercise physiology and biochemistry, sub-specializations in nutritional biochemistry and molecular physiology: Dissertation: “Clenbuterol and Exercise: Effects of a  $\beta_2$ -Adrenoceptor Agonist on Locomotor Endurance Capacity and Muscular Force Production.” Advisor: Dr. William Barnes

#### **Master of Education**

Tarleton State University, 1989; Physical Education; Thesis title: “A Comparison of Isotonic Free Weights and Omnikinetic Exercise Machines on Strength.” Advisor: Dr. Joe Gillespie

#### **Bachelor of Science**

Tarleton State University, 1986; Physical Education. Advisor: Dr. Joe Gillespie

### ACADEMIC AND PROFESSIONAL EXPERIENCE

#### **Primary Academic Appointment**

**Professor of Human Anatomy and Physiology, Physician Assistant Program, School of Health Professions; Professor of Exercise Physiology and Nutritional, School of Exercise and Sport Science**

Mayborn College of Health Sciences, University of Mary Hardin-Baylor, June 2020-present

**Adjunct Academic Appointments**

**Adjunct Professor**

Health Science Center, Texas A&M University, 2020-present

**Graduate Adjunct Faculty**

Department of Exercise Science, University of South Carolina, 2020-present

**Graduate Adjunct Faculty**

Department of Health and Human Performance, Baylor University, 2020-present

**Associate Graduate Faculty**

Department of Kinesiology, Texas A&M University-Corpus Christi, 2019-present

**Graduate Faculty Scholar**

Department of Sport and Exercise Science, University of Central Florida, 2014-present

**Previous Employment**

**Professor of Exercise/Nutritional Biochemistry and Molecular Physiology**

Department of Health, Human Performance, and Recreation, Graduate Faculty Appointment, Director of Exercise and Biochemical Nutrition Laboratory, Baylor University, August 2016-2020

**Associate Professor of Exercise/Nutritional Biochemistry and Molecular Physiology**

Department of Health, Human Performance, and Recreation, Graduate Faculty Appointment, Director of Exercise and Biochemical Nutrition Laboratory, Baylor University, August 2004-2015

**Associate Professor of Biomedical Science**

Baylor Institute of Biomedical Science, September 2005-2015

**Associate Professor of Exercise Physiology and Kinesiology**

Department of Kinesiology, Texas Christian University, 2002-2004. Graduate Faculty Appointment, College of Health and Human Sciences, Texas Christian University, 2002-2004

**Assistant Professor of Exercise Physiology and Kinesiology**

Department of Kinesiology, Texas Christian University, 1999-2002. Graduate Faculty Appointment, College of Health and Human Sciences, Texas Christian University, 2000-2002

**Assistant Professor of Exercise Physiology**

Director of Human Performance Laboratory, Department of Sport Medicine, College of Nursing and Health Professions, University of Southern Maine, Portland, ME, 1995-1999

**Assistant Administrator, Hood General Hospital**

Director of Center of Health and Fitness; Director of Cardiac Rehabilitation, Granbury, TX, 1993-1995

**Visiting Assistant Professor of Exercise Physiology**

Director of Human Performance Laboratory, Department of Fitness and Human Performance, University of Houston-Clear Lake, 1992-1993

**Previous Secondary Academic Appointments**

**Professor of Biology**

Department of Biology, Baylor University, 2016-2020

**Professor of Biomedical Science**

Department of Biomedical Science, Baylor University, 2005-2020

**TEACHING EXPERIENCE**

**Graduate Courses Taught**

- ◆ Exercise Physiology
- ◆ Exercise Physiology Laboratory
- ◆ Exercise Biochemistry
- ◆ Neuromuscular Exercise Physiology
- ◆ Cardiopulmonary Exercise Physiology
- ◆ Laboratory Techniques in Exercise Physiology
- ◆ Laboratory Techniques in Molecular Biology
- ◆ Clinical Exercise Physiology
- ◆ Applied Neuroanatomy
- ◆ Nutritional Biochemistry
- ◆ Muscle Physiology and Biochemistry
- ◆ Clinical Exercise Testing and Prescription
- ◆ Strength Training and Conditioning
- ◆ Sports Nutrition
- ◆ Cardiac Rehabilitation
- ◆ Adapted/Therapeutic Physical Education
- ◆ Physical Fitness and Wellness
- ◆ Exercise Electrocardiography
- ◆ Research Design/Methodology/Statistics
- ◆ Applied Neurophysiology
- ◆ Exercise Endocrinology
- ◆ Nutrigenetics and Epigenetics

**Undergraduate Courses Taught**

- ◆ Exercise Physiology
- ◆ Exercise Physiology Laboratory
- ◆ Strength Training and Conditioning
- ◆ Exercise Testing and Prescription
- ◆ Exercise Pharmacology
- ◆ Exercise and Special Populations
- ◆ Anatomical Kinesiology
- ◆ Tests and Measurements
- ◆ Principles of Physical Fitness
- ◆ Lifetime Physical Fitness and Wellness
- ◆ Health, Emergency Care, and First Aid
- ◆ Human Anatomy & Physiology

◆ Exercise Biochemistry

◆ Drugs and Human Health

## JUNIOR FACULTY AND GRADUATE STUDENT MENTORING

### **Junior Faculty Mentoring**

- ◆ Yunsuk Koh, Ph.D., Baylor University, Department of Health, Human Performance, and Recreation, mentored to Associate Professor and tenure, 2014-2019
- ◆ LesLee Funderburk, Ph.D., Baylor University, Department of Nutritional Sciences, Assistant Professor, being mentored toward tenure and promotion to Associate Professor, 2017-present
- ◆ Dan Newmire, Texas A&M University-Corpus Christi, Department of Kinesiology, Assistant Professor, being mentored toward tenure and promotion to Associate Professor, 2018-present
- ◆ Panos Koutakis, Ph.D., Baylor University, Department of Health, Human Performance, and Recreation, mentored toward Associate Professor and tenure while at Baylor (left in 2018), 2016-2018
- ◆ Matt Cooke, Ph.D., Baylor University, Department of Health, Human Performance, and Recreation, mentored toward Associate Professor and tenure while at Baylor (left in 2012), 2010-2012

### **Graduate Student Mentoring**

#### **Baylor University**

##### ◆ Doctoral Dissertations

2020: Annie Bane: Effects of blood flow restriction resistance training on strength, vascular and motor function in persons with Parkinson's Disease

2019: Paul Hwang: Effects of pyrroloquinoline quinone (PQQ) supplementation on mitochondrial function and biogenesis and aerobic exercise performance in untrained men

2017: Tom Andre: Effect of a Restrictive Breathing Mask on Resistance Exercise Performance in Resistance-Trained Males

2017: Josh Gann: Effects of hypohydration on muscular performance and markers of catabolism in resistance-trained females

2016: Sarah McKinley-Barnard: Effectiveness of fish oil supplementation in attenuating eccentric exercise-induced muscle damage in females during mid-follicular and mid-luteal menstrual phases

2014: Neil Schwarz: Effect of resistance exercise intensity on the expression of PGC-1alpha isoforms and the anabolic and catabolic signaling mediators, IGF-1 and myostatin, in human skeletal muscle

2013: Mike Spillane: Effects of lower- and higher-volume resistance exercise on serum testosterone and skeletal muscle androgen receptor content in men: subsequent effects on the mRNA expression of insulin-like growth factor peptide and myostatin in skeletal muscle

2010: Geoffrey Hudson: Effects of resveratrol supplementation on glucose/insulin kinetics and transcription of AMPK and insulin signaling pathway at rest and following an oral glucose tolerance test and graded exercise test in overweight women

2010: Brian Shelmadine: Acute effects of *Pterocarpus Marsupium* supplementation on insulin-dependent and insulin-independent signaling pathways at rest, after an oral glucose tolerance test, and after intense exercise in overweight pre-diabetic females

2009: Kristen Beavers: Effects of four weeks of daily soy milk or dairy milk ingestion on the exercise-induced inflammatory and oxidative stress responses in plasma and skeletal muscle in a post-menopausal female population

2009: Monica Serra: Effects of dairy versus soy ingestion on skeletal muscle markers of inflammation and proteolysis in post-menopausal women

2009: Thomas Buford: An investigation of the effects of regular exercise in older males on oxidative stress, skeletal muscle apoptosis, and atrophy-related gene expression in response to muscle insult

2009: Brian Brabham: Effects of combined creatine supplementation and resistance training on body composition, muscle strength, and markers of satellite cell activation in older males

2009: Jean Jitmir: *Cassia* cinnamon and acute endurance exercise for the enhancement of glucose uptake in healthy young women

2008: Travis Harvey: Effects of concentric and eccentric muscle contractions on IL-6 signaling in human skeletal muscle and downstream regulation of HSP-72 gene expression: is IL-6 signaling involved in exercise-induced cytoprotection?

2008: Jen Wismann: Effects of 28 days of protein and amino acid supplementation and ankle immobilization on gastrocnemius muscle mass and strength and atrophy and apoptosis-related gene expression in males

2008: Rui Li: Co-ingestion of carbohydrate with branched-chain amino acids or L-Leucine does not preferentially increase serum IGF-1 and expression of myogenic-related genes in response to a single bout of resistance exercise

2008: Maria Ferreira: Effects of ingesting carbohydrate and branched-chain amino acids on markers of skeletal muscle protein synthesis of the insulin-PI3K-mTOR signal transduction pathway in response to a bout of heavy resistance exercise

2008: Erika Nassar: Effects of ingesting an anti-inflammatory nutritional supplement while participating in a resistance training program on indices of body composition and metabolic, cardiovascular, muscular, and hemodynamic function in overweight females

2007: Bill Campbell: Effects of branched-chain amino Acid and leucine ingestion on the ERK1/2 MAP kinase signal transduction pathway in conjunction with an acute bout of heavy resistance exercise

2007: Paul LaBounty: Effects of heavy resistance exercise in combination with orally-administered branched-chain amino acids or leucine on insulin signaling and Akt/mTOR pathway activity in active males

2006: Chad Kerkick: Effects of prophylactic supplementation of N-acetyl-cysteine and epigallocatechin gallate (green tea) on markers of oxidative stress, skeletal muscle proteolysis and apoptosis after eccentric contraction-induced injury in untrained males

2006: Lem Taylor: Effects of low- and high-intensity single-leg resistance exercise on the mitogen-activated protein kinase ERK1/2 family and signal transduction response in skeletal muscle of untrained males

2006: Colin Wilborn: Effects of low- and high-intensity resistance exercise on the mRNA expression of myosin heavy chain isoforms and regulators of myogenesis

#### ◆ Masters' Theses

2020: Tom Cardaci: Effects of resistance exercise load on androgen receptor–DNA binding, androgen- regulated gene expression, and  $\beta$ -Catenin mediation in human skeletal muscle

2019: Dylan Wilburn: Effects of carbohydrate supplementation on resistance exercise performance, blood glucose, endocrine and metabolite responses immediately before exercise and during recovery

2019: Sofie DeWandel: Effects of including aerobic exercise in the treatment protocol of concussions: a systemic review and meta-analysis

2011: Sean Foster: Effects of eight weeks of heavy resistance training and branched chain amino acid and carbohydrate supplementation on muscle performance and body composition.

2008: Mike Spillane: Effects of creatine ethyl ester supplementation combined with resistance training on body composition, muscle mass and performance, and intramuscular creatine uptake in males

2008: Chris Moulton: Effects of creatine monohydrate supplementation on creatine transporter activity and creatine metabolism in resistance males

2007: Chris Mulligan: Effects of prophylactic doses of a melatonin supplement on serum growth hormone levels and the hypothalamus-pituitary-adrenal axis in young males

2007: Ryan Schoch: Effects of a creatine supplement formulation containing cinnamon extract on creatine uptake, creatine transporter expression, insulin signaling, and muscle performance in males

2005: Dan Rohle: Effects of eight weeks of 6-OXO supplementation on serum hormone profiles and serum and urinary clinical safety markers in resistance-trained males

2005: Tony Vicanti: Effects of hind limb unweighting on the expression of physiological markers of muscle atrophy and myofibrillar protein content in the soleus and extensor digitorum longus of Sprague-Dawley rats

### **Texas Christian University**

#### ◆ Masters' Theses

2004: Allison Harvey: Effects of eccentric muscle contractions on estrogen receptor signaling and myostatin mRNA expression in males and females

2004: Babette Bouw: Estradiol in females may negate skeletal muscle myostatin mRNA expression and serum myostatin propeptide levels after eccentric muscle contractions

2003: Lem Taylor: Effects of three sequential bouts of heavy resistance exercise on HSP-72 and ubiquitin protein expression in trained vs. untrained males

2002: Melanie Brown: Effects of repeated bouts of eccentric exercise on HSP-72 and ubiquitin expression

2002: Chris Bois: Effects of heat exposure and eccentric exercise on HSP-72 and IL-6 expression

### **ADMINISTRATIVE AND LEADERSHIP EXPERIENCE**

- ◆ Director, Doctoral Program in Kinesiology, Exercise Nutrition, and Health Promotion, Baylor University, 2016-2018
- ◆ Director, Exercise and Biochemical Nutrition Laboratory, Baylor University, 2004-2019
  - \* Supervisor, Exercise and Healthy Aging Research Unit, 2009-present
  - \* Supervisor, Resistance Exercise and Nutrigenetics Research Unit, 2007-present
  - \* Supervisor, Exercise Nutrition and Resistance Training Research Unit, 2006-present

- ◆ Director, Exercise Physiology Laboratory, Texas Christian University, 1999-2004
- ◆ Director, Exercise Physiology Laboratory, University of Southern Maine, 1995-1999
- ◆ Assistant Administrator, Hood General Hospital, 1993-1995
  - \* Director of the Center for Health and Fitness
  - \* Director of Cardiac Rehabilitation
- ◆ Director, Exercise Physiology Laboratory, University of Houston-Clear Lake, 1992-1993

## RESEARCH INTERESTS, SKILLS, AND COMPETENCIES

### Primary Interests

Effects of resistance exercise/training and/or nutritional intervention on the physiological, biochemical, and molecular mechanisms regulating skeletal muscle hypertrophy and myogenic activation of satellite cells in young and aging humans.

### Secondary Interests

Effects of resistance exercise/training and/or nutritional intervention on HPA axis-induced cortisol release, along with the mechanisms of oxidative stress-induced muscle proteolysis, in young and aging humans.

### Tertiary Interests

Effects of manipulating resistance training programmatic variables (e.g., intensity, duration, frequency, volume, etc.) with the intent of enhancing exercise and sport performance due to improvement in muscle strength, power, and endurance in young and aging humans.

### Research Skills

- ◆ Body composition (skinfold, hydrostatic weighing, DEXA, BIA)
- ◆ Body core and internal muscle temperature assessment
- ◆ Doppler ultra-sound (for arterial blood flow and muscle cross-sectional area)
- ◆ 12-lead electrocardiography
- ◆ Electromyography
- ◆ Graded exercise testing (with treadmill and bicycle ergometer)
- ◆ Hematology and blood processing
- ◆ Isokinetic testing for muscle strength and power
- ◆ Maximum oxygen uptake testing
- ◆ Oral glucose tolerance testing
- ◆ Phlebotomy (venipuncture and in-dwelling venous catheter)
- ◆ Percutaneous muscle biopsy (Bergstrom-type and fine needle aspiration)
- ◆ Resting energy expenditure testing
- ◆ Spirometry (pulmonary function)



- ◆ Wingate power testing
- ◆ Vertical jump testing

### **Analytical Laboratory Competencies**

- ◆ DNA analysis/gene polymorphisms and gene sequencing
- ◆ Enzyme-linked immunoabsorbent assay (ELISA)
- ◆ Gel mobility shift assay (transcription factor/DNA binding)
- ◆ Immunoblotting (Western blotting)
- ◆ Immunohistochemistry
- ◆ Immunoprecipitation
- ◆ High performance liquid chromatography (HPLC)
- ◆ Muscle histochemistry (muscle fiber typing)
- ◆ Nucleotide electrophoresis (agarose)
- ◆ Protein electrophoresis (SDS-PAGE)
- ◆ Protein spectrophotometry (UV, VIS, fluorometric, chemiluminescence)
- ◆ RNA and DNA isolation and quantitation
- ◆ Real-time polymerase chain reaction (RT-PCR) for gene expression

## **PUBLICATIONS**

### **Textbook Editor**

Antonio J, Kalman D, Stout J, **Willoughby DS**, Greenwood M, Haff G. *Essentials of Sports Nutrition and Supplements*, (ISBN: 1-58829-611-3), Humana Press, 2008.

### **Textbook Chapters**

**Willoughby DS**. Protein and Amino Acids, Chapter 4. *Dietary Supplementation in Sport and Exercise* (Hoffman, ed), Routledge Press, 2019.

**Willoughby DS**. Shoulder Training. *JC's Total Body Transformation*, (ISBN-13: 978-1492563174), Human Kinetics Publishing, 2018.

Ziegenfuss T, Landis J, **Willoughby DS**, Greenwood M. Nutritional Supplements to Enhance Recovery, Chapter 12. *Nutritional Supplements in Sports and Exercise* (Greenwood, Cooke, Ziegenfuss, Kalman, & Antonio, eds.) 2<sup>nd</sup> Ed., (ISSN: 978-3-319-18229-2), Springer Publishing, 2015.

**Willoughby DS**. Energy Systems and Skeletal Muscle Plasticity, Chapter 1. *Sports Nutrition and Performance Enhancing Supplements* (Smith-Ryan & Antonio, eds.), (ISBN13: 978-1-60797-339-3), Linus Publications, 2013.

**Willoughby DS.** Molecular Aspects of Exercise and Nutrition. *Essentials of Sports Nutrition and Supplements*, (ISSN: 1-58829-611-3), Humana Press, pp. 103-119, 2008.

Volek JS, Forsythe C, Antonio J, Kalman D, Stout JR, Greenwood M, **Willoughby DS**, Haff GG. Very-low-carbohydrate diets. *Essentials of Sports Nutrition and Supplements*. (ISSN: 1-58829-611-3), Humana Press, pp. 581-603, 2008.

**Willoughby DS.** Creatine Monohydrate Supplementation in Strength and Power Sports, Chapter 2. *Essentials of Creatine Supplementation in Sports and Exercise* (Stout, Antonio, & Kalman, eds.), (ISBN: 978-1-59745-573-2), Humana Press, pp. 25-44, 2007.

### **Peer-Reviewed Research Publications (as Principal Investigator/First Author)**

- As PI/First Author, my contribution was 100% for those publications with me as the only author and at least 85% with those publications with co-authors, indicating that I secured any external funding, developed experimental design, mentored graduate students (for those as co-authors), performed participant testing, performed laboratory and statistical analyses, and drafted manuscript.

### **Published**

**Willoughby DS, Funderburk L.** Serum levels of C-terminal agrin fragment are decreased in post-menopausal women following resistance training. *Journal of Aging and Physical Activity*, 2019, doi: 10.1123/japa.2019-0066.

**Willoughby DS, Hewlings, S, Kalman, D.** Body composition changes in weight loss: strategies and supplementation for maintaining lean body mass. *Nutrients*, 10:1876, 2018.

**Willoughby DS, Spillane M, Schwarz N.** Heavy resistance training and supplementation with the alleged testosterone booster NMDA has no effect on body composition, muscle performance, and serum hormones associated with the hypothalmo-pituitary-gonadal axis in resistance-trained males. *Journal of Sport Science and Medicine*, 13:192-99, 2014.

**Willoughby DS, Leutholtz B.** D-aspartic acid supplementation combined with 28 days of heavy resistance training has no effect on body composition, muscle strength, and serum hormones associated with the hypothalamo-pituitary-gonadal axis in resistance-trained males. *Nutrition Research*, 33:803-10, 2013.

**Willoughby DS, Boucher A, Reid J, Skelton G, Clarke M.** Effects of seven days of arginine-alpha-ketoglutarate (AAKG) supplementation using NO<sub>2</sub> Platinum™ on brachial artery blood flow and the levels of plasma L-arginine, NOX, eNOS, and ADMA after resistance exercise. *International Journal of Sports Nutrition and Exercise Metabolism*, 21:291-99, 2011.

**Willoughby DS**, Wilborn C, Taylor L, Campbell B. Eight weeks of aromatase inhibition using the nutritional supplement Novedex XT™: Effects on serum steroid hormones, body composition, and clinical safety markers in young, eugonadal males. *International Journal of Sports Nutrition and Exercise Metabolism*, 17:92-108, 2007.

**Willoughby DS**, Stout J, Wilborn C. Effects of heavy resistance training and timed ingestion of a protein and amino acid supplementation on muscle strength and mass and muscle anabolism. *Amino Acids*, 32:467-78, 2007.

**Willoughby DS**, Wilborn C. Estradiol in females may negate skeletal muscle myostatin mRNA expression and serum myostatin propeptide levels after eccentric muscle contractions. *Journal of Sport Science and Medicine*, 5:672-81, 2006.

**Willoughby DS**, Taylor L. Effects of concentric and eccentric muscle contractions on serum myostatin and FLRG levels. *Journal of Sport Science and Medicine*, 3:226-33, 2004.

**Willoughby DS**, Taylor L. The effects of sequential bouts of heavy resistance training on androgen receptor expression. *Medicine and Science in Sports and Exercise*, 36:1499-1506, 2004.

**Willoughby DS**. Effects of an alleged myostatin binding supplement and heavy resistance training on serum myostatin, muscle strength and mass, and body composition. *International Journal of Sport Nutrition and Exercise Metabolism*, 14:461-72, 2004.

**Willoughby DS**. Effects of heavy resistance training on myostatin mRNA and protein expression. *Medicine and Science in Sports and Exercise*, 36:574-82, 2004.

**Willoughby DS**, Taylor M, Taylor L. Glucocorticoid receptor and ubiquitin expression after repeated eccentric exercise. *Medicine and Science in Sports and Exercise*, 35:2023-31, 2003.

**Willoughby DS**, VanEnk C, Taylor, L. Effects of concentric and eccentric contractions on exercise-induced muscle injury, inflammation, and serum IL-6. *Journal of Exercise Physiology*, 6:8-15, 2003.

**Willoughby DS**, Rosene J. Effects of oral creatine and resistance training on myogenic regulatory factor expression. *Medicine and Science in Sports and Exercise*, 35:923-29, 2003.

**Willoughby DS**, Rosene J, Myers J. Ubiquitin and HSP-72 expression and apoptosis after a single session of eccentric exercise. *Journal of Exercise Physiology*, 6:88-95, 2003.

**Willoughby DS**, Sultemeire S, Brown M. Human muscle disuse atrophy after 28 days of immobilization in a lower-limb walking boot: A Case Study. *Journal of Exercise Physiology*, 6:96-104, 2003.

**Willoughby DS**, McFarlin B, Bois C. Interleukin-6 expression after repeated bouts of eccentric exercise. *International Journal of Sports Medicine*, 24:15-21, 2003.

**Willoughby DS**, Nelson M. Myosin heavy chain mRNA expression after a single session of heavy resistance exercise. *Medicine and Science in Sports and Exercise*, 34:1262-69, 2002.

**Willoughby DS**, Priest J, Nelson M. Expression of the stress proteins, ubiquitin and HSP-72, and myofibrillar protein content after 12 weeks of leg cycling in persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 83:649-54, 2002.

**Willoughby DS**, Rosene, J. Effects of oral creatine and resistance training on myosin heavy chain expression. *Medicine and Science in Sports and Exercise*, 33:1674-81, 2001.

**Willoughby DS**. Resistance training in the older adult. *American College of Sports Medicine Current Comment*, April, 1-4, 2001.

**Willoughby DS**, Pelsue S. Effects of high-intensity strength training on steady-state myosin heavy chain isoform mRNA expression. *Journal of Exercise Physiology*, 3:13-25, 2000.

**Willoughby DS**, Priest J, Jennings R. Myosin heavy chain isoform and ubiquitin protease mRNA expression after passive leg cycling in persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 81:157-63, 2000.

**Willoughby DS**, Pelsue S. Muscle strength and qualitative myosin heavy chain isoform mRNA expression after moderate- and high-intensity weight training in the elderly. *Journal of Aging and Physical Activity*, 6:327-39, 1998.

**Willoughby DS**, Simpson S. Supplemental electromyostimulation and dynamic weight training: Effects on knee extensor strength and vertical jump of female collegiate athletes. *Journal of Strength & Conditioning Research*, 12:131-37, 1998.

**Willoughby DS**, Roozen M, Barnes R. The effects of a low- and high-intensity aerobic exercise program on the functional capacity and cardiovascular efficiency of post-CABG patients. *Journal of Aging and Physical Activity*, 5:1-7, 1997.

**Willoughby DS**, Barnes W, Ingalls C, Smith S. The effects of the  $\beta_2$ -agonist clenbuterol and exercise training on muscle protein and performance. *Journal of Strength and Conditioning Research*, 10: 228-33, 1996.

**Willoughby DS**, Simpson S. The effects of combined electromyostimulation and dynamic muscular contractions on the strength of college basketball players. *Journal of Strength and Conditioning Research*, 10:34-39, 1996.

**Willoughby DS**, Green J, Sebesta T, Crouse S. A comparison of cardiac function in strength- and endurance-trained athletes with left ventricular hypertrophy. *Journal of Human Movement Studies*, 24:217-35, 1994.

**Willoughby DS**. The effects of weight training programs involving periodization and partially-equated volumes on upper-and lower-body strength. *Journal of Strength and Conditioning Research*, 7:2-8, 1993.

**Willoughby DS**. The effects of two selected weight training programs on upper and lower body strength of trained males. *The Applied Research in Coaching and Athletics Annual*, March:124-46, 1992.

**Willoughby DS**. Training volume equated: A comparison of periodized and progressive resistance weight training programs. *Journal of Human Movement Studies*, 20:45-58, 1991.

**Willoughby DS**, Chilek D, Schiller D, Coast R. The metabolic effects of three different free weight parallel squatting intensities. *Journal of Human Movement Studies*, 20:15-25, 1991.

**Willoughby DS**, Gillespie J. A comparison of isotonic free weights and omnikinetic exercise machines on strength. *Journal of Human Movement Studies*, 19:93-100, 1990.

### **Peer-Reviewed Research Publications (as Principal Investigator/Graduate Student Mentor)**

- As PI/Graduate Student Mentor, my contribution was 85% with those indicating that I secured external funding (for those studies funded), developed experimental design, mentored graduate students, provided 100% supervision and oversight over project, assisted in participant testing, laboratory analyses, and statistical analyses, and supervised the creation of presentations and manuscripts.

### **Published**

Machek SB, Cardaci TD, Willoughby DS. Blood flow restriction and betaine supplementation as a novel combined modality to augment skeletal muscle adaptation: A short review. *Strength and Conditioning Journal*. 2020, E-pub ahead of print.

Wilburn DT, Machek SB, Cardaci TD, Hwang PS, **Willoughby DS**. Acute maltodextrin supplementation during resistance exercise. *Journal of Sport Science and Medicine*. 19: 282-288, 2020.

Gann J, Andre T, Gallucci A, **Willoughby DS**. Effects of hypohydration on muscular strength, endurance, and power in females. *Journal of Strength and Conditioning Research*. 2020 doi: 10.1519/JSC.0000000000003298.

Reyes T, **Willoughby DS**. Biochemical and structural alterations in skeletal muscle following ACL injury: a narrative review. *International Journal of Kinesiology and Sport Science*. 8(1): 8-13, 2020.

Morse T, **Willoughby DS**. Efficacy of BCAA supplementation for exercise performance and recovery: a narrative review. *Journal of Nutritional Health and Food Engineering*, 9(3): 128-133, 2019.

Hwang PS, Macheck SB, Cardaci TD, Wilburn DT, Kim CS, Suezaki ES, **Willoughby DS**. Effects of Pyrroloquinoline Quinone (PQQ) supplementation on aerobic exercise performance and indices of mitochondrial biogenesis in untrained men. *Journal of the American College of Nutrition*, 2019 Dec 20:1-10. doi: 10.1080/07315724.2019.1705203.

DeWandel S, **Willoughby DS**. Effects of including aerobic exercise in the treatment protocol of concussions: a systemic review and meta-analysis. *International Journal of Kinesiology and Sport Science*, 7(4): 33-52, 2019.

Macheck S, **Willoughby DS**. Non-nutritive sweeteners: implication for consumption in athletic populations. *Strength and Conditioning Journal*, 41(4): 112-26, 2019.

Hwang P, **Willoughby DS**. Mechanisms behind blood flow restricted training and its effect towards muscle growth. *Journal of Strength and Conditioning Research*, 33 Suppl 1: S167-S179, 2019.

Saxvanderweyden M, **Willoughby DS**. Creatine and beta-alanine supplementation for increased anaerobic performance in sprinting and throwing track and field athletes. *Journal of Exercise and Nutrition*, 1(4):1-8, 2018

Hwang P Morales Marroquin FE, Gann J, Andre T, McKinley-Barnard S, Kim C, Morita M, **Willoughby DS**. Eight weeks of resistance training in conjunction with glutathione and L-citrulline supplementation increases lean mass and has no adverse effects on blood clinical safety markers in resistance-trained males. *Journal of the International Society of Sports Nutrition*, 15:30, 2018.

Andre TL, Gann JJ, Hwang PS, Magnussen MJ, **Willoughby DS**. Restrictive breathing mask reduces repetitions to failure during a session of lower-body resistance exercise. *Journal of Strength and Conditioning Research*, 2018, doi: 10.1519/JSC.0000000000002648.

Hwang P, **Willoughby DS**. Clock-mediated rhythms and phase shifts in skeletal muscle through transcriptional-translational feedback loops: Effects of exercise. *Cellular and Molecular Exercise Physiology*, 6:1, 2018, e11. doi: 10.7457/cmep.v6i1.e11

Hwang P, **Willoughby DS**. Mechanisms behind Pyrroloquinoline Quinone (PQQ) supplementation on mitochondrial biogenesis and possible synergistic effects with exercise. *Journal of the American College of Nutrition*, 1:1-11, 2018.

Holmes M, **Willoughby DS**. The influence of vegetarian diets on iron metabolism and supplementation in female athletes. *Journal of Exercise and Nutrition*, 1:1-17, 2018.

Haines M, McKinley-Barnard S, Andre T, Gann J, Hwang P, **Willoughby DS**. Skeletal muscle estrogen receptor activation in response to eccentric exercise up-regulates myogenic-related gene expression independent of differing serum estradiol levels occurring during the human menstrual cycle. *Journal of Sport Science and Medicine*, 17:31-39, 2018.

Ismaeel A, Weems S, **Willoughby DS**. A comparison of the nutrient intakes of macronutrient-based dieting and strict dieting bodybuilders. *International Journal of Sport Nutrition & Exercise Metabolism*, 15:1-24, 2017.

McKinley-Barnard SK, Andre TL, Gann JJ, Hwang PS, **Willoughby DS**. The effectiveness of fish oil supplementation in attenuating exercise-induced muscle damage in females during mid-follicular and mid-luteal menstrual phases. *Journal of Strength and Conditioning Research*, 32:1601-1612, 2018.

Hwang P, Andre T, McKinley-Barnard S, Morales E, Gann J, Song J, **Willoughby DS**. Resistance training-induced elevations in muscular strength in trained males are maintained after two weeks of detraining and is not differentially impacted by whey protein supplementation. *Journal of Strength and Conditioning Research*, 31(4):869-81, 2017.

Morales E, Forsse J, Andre T, McKinley-Barnard S, Hwang P, Anthony I, Tinsley G, Spillane M, Grandjean, P, Ramirez A, **Willoughby DS**.  $\beta$ -aminoisobutyric acid does not regulate exercise-induced UCP-3 expression in human skeletal muscle. *Journal of the American College of Nutrition*, 20:1-10, 2017.

Holmes M, **Willoughby DS**. The effectiveness of whole-body cryotherapy compared to cold water immersion: Implications for sport and exercise recovery. *International Journal of Kinesiology and Sport Science*, 4(4):32-39, 2016.

Andre T, Gann J, McKinley-Barnard S, Song J, **Willoughby DS**. Eight weeks of phosphatidic acid supplementation in conjunction with resistance training does not differentially affect body composition and muscle strength in resistance-trained men. *Journal of Sport Science and Medicine*, 15(3):532-39, 2016.

Schwarz NA, McKinley-Barnard SK, Spillane MB, Andre TL, Gann JJ, **Willoughby DS**. Effect of resistance exercise intensity on the expression of PGC-1 $\alpha$  isoforms and the anabolic and catabolic signaling mediators, IGF-1 and myostatin, in human skeletal muscle. *Applied Physiology Nutrition and Metabolism*, 41(8):856-63, 2016.

Church D, Schwarz N, Spillane M, McKinley-Barnard S, Andre T, Ramirez A, **Willoughby DS**. L-Leucine increases skeletal muscle IGF-1 but does not differentially increase Akt/mTORC1 signaling and serum IGF-1 compared to ursolic acid in response to resistance exercise in trained men. *Journal of the American College of Nutrition*, 22:1-12, 2016.

Andre T, Gann J, McKinley-Barnard S, Moulton C, **Willoughby DS**. Effects of five weeks of resistance training and creatine monohydrate supplementation on body composition and muscle strength, creatine transporter activity, and whole-body creatine metabolism in resistance-trained males. *International Journal of Kinesiology and Sport Science*, 41(2):27-36, 2016.

Spillane M, **Willoughby DS**. Daily overfeeding from protein and/or carbohydrate supplementation for eight weeks in conjunction with resistance training does not improve body composition and muscle strength or increase markers indicative of muscle protein synthesis and myogenesis in resistance-trained males. *Journal of Sport Science and Medicine*, 15:17-25, 2016.

Gutierrez J, Bowden R, **Willoughby DS**. Cassia cinnamon supplementation reduces peak blood glucose responses but does not improve insulin resistance and sensitivity in young, sedentary, obese women. *Journal of Dietary Supplements*, 13(4):461-71, 2016.

Tinsley G, **Willoughby DS**. Fat-free mass changes during ketogenic diets and the potential role of resistance training. *International Journal of Sport Nutrition and Exercise Metabolism*, 26(1):78-92, 2016.

Morales-Marroquin FE, **Willoughby DS**. Factors regulating uncoupling protein-3 (UCP-3) expression in skeletal muscle. *Journal of Nutritional Health & Food Engineering*, 3(1):1-8, 2015.

McKinley-Barnard S, **Willoughby DS**. The potential cytoprotective influence of estrogen and fish oil supplementation on exercise-induced muscle damage and delayed onset muscle soreness in females. *Journal of Nutritional Health & Food Engineering*, 2(6):1-15, 2015.

Newmire D, **Willoughby DS**. Wnt and  $\beta$ -catenin signaling and skeletal muscle myogenesis in response to muscle damage and resistance exercise and training. *International Journal of Kinesiology and Sport Science*, 3(4):40-49, 2015.

McKinley-Barnard S, Andre T, Morita M, **Willoughby DS**. Combined L-citrulline and glutathione supplementation increases the concentration of markers indicative of nitric oxide synthesis. *Journal of the International Society of Sports Nutrition*, 12:27, 2015.

Spillane M, Schwarz N, **Willoughby DS**. Upper-body resistance exercise augments vastus lateralis androgen receptor-DNA binding and canonical Wnt/ $\beta$ -catenin signaling compared to lower-body resistance exercise in resistance-trained men without an acute increase in serum testosterone. *Steroids*, 98:63-71, 2015.



Li R, Ferreira MP, Cooke MB, La Bounty P, Campbell B, Greenwood M, **Willoughby DS**, Kreider RB. Co-ingestion of carbohydrate with branched-chain amino acids or L-leucine does not preferentially increase serum IGF-1 and expression of myogenic-related genes in response to a single bout of resistance exercise. *Amino Acids*, 47:1203-1213, 2015.

Schwarz NA, Spillane MB, McKinley SK, Andre TL, Gann JJ, **Willoughby DS**. Acute myosin heavy chain isoform mRNA expression in response to two resistance exercise intensities with equal volume load in resistance-trained men. *Journal of Strength and Conditioning Research*, 29:2326-32, 2015.

Hwang P, **Willoughby, DS**. Intracellular sensing and transport of amino acids and the downstream effects on mTORC1 activation: Implications for muscle protein synthesis. *Journal of Nutritional Health & Food Engineering*, 2:1-11, 2015.

Hwang P, **Willoughby, DS**. mTORC1 signaling-activated increases in muscle protein synthesis induced by leucine and phosphatidic acid: Implications for muscle protein synthesis. *International Journal of Food and Nutritional Science*, 2:1-6, 2015.

Beaudoin K, **Willoughby DS**. The role of the gluten-derived peptide gliadin in celiac disease. *Journal of Nutritional Health & Food Engineering*, 1:1-4, 2014.

McKinley S, **Willoughby DS**. Effectiveness of antioxidant nutraceuticals in attenuating canonical NF- $\kappa$ B signaling in human skeletal muscle resulting from exercise-induced oxidative stress. *Journal of Nutritional Health & Food Engineering*, 1:1-8, 2014.

Spillane M, Schwarz N, **Willoughby DS**. Heavy resistance training and peri-exercise ingestion of a multi-ingredient ergogenic nutritional supplement in males: Effects on body composition, muscle performance, and markers of muscle protein synthesis. *Journal of Sport Science and Medicine*, 13:894-903, 2014.

Ferreira M, Li R, Cooke M, Kreider R, **Willoughby DS**. Peri-exercise co-ingestion of branched-chain amino acids and carbohydrate in men does not preferentially augment resistance exercise-induced increases in PI3K/Akt-mTOR pathway markers indicative of muscle protein synthesis. *Nutrition Research*, 34:191-98, 2014.

Cooke M, Brabham B, Buford T, Shelmadine B, McPheeters M, Hudson G, Stathis C, Greenwood M, Kreider R, **Willoughby DS**. Creatine supplementation post exercise does not enhance training-induced adaptations in middle to older aged males. *European Journal of Applied Physiology*, 114:1321-32, 2014.

Schwarz NA, Spillane M, La Bounty P, Grandjean PW, Leutholtz B, **Willoughby DS**. Capsaicin and evodiamine ingestion does not augment energy expenditure and fat oxidation at rest or after moderately-intense exercise. *Nutrition Research*, 33:1034-42, 2013.

Keeksick C, Roberts M, Dalbo V, Kreider R, **Willoughby DS**. Changes in skeletal muscle proteolytic gene expression after prophylactic supplementation of EGCG and NAC and eccentric muscle damage. *Food and Chemical Toxicology*, 61:47-52, 2013.

Spillane M, **Willoughby DS**. The effects of eight weeks of heavy resistance training and branched-chain amino acid supplementation on muscle performance and body composition. *Nutrition and Health*, 21:263-73, 2012.

Serra M, Beavers K, Hudson G, **Willoughby DS**. Effects of dairy versus soy ingestion on skeletal muscle markers of inflammation and proteolysis in post-menopausal women. *Nutrition and Health*, 21:117-30, 2012.

Taylor L, Wilborn C, **Willoughby DS**. Effects of resistance exercise intensity on extracellular-regulated kinase 1/2 mitogen-activated protein kinase activation in men. *Journal of Strength and Conditioning Research*, 26:599-607, 2012.

Cooke M, La Bounty P, Buford T, Shelmadine B, Redd L, Hudson G, **Willoughby DS**. Ingestion of 10 grams of whey protein prior to a single bout of resistance exercise does not augment Akt/mTOR pathway signaling compared to carbohydrate. *Journal of the International Society of Sport Nutrition*, 8:18, 2011.

Spillane M, Schwarz N, Leddy S, Correa T, Minter M, Longoria V, **Willoughby DS**. Effects of 28 days of resistance exercise while consuming commercially available pre- and post-workout supplements, NO-Shotgun® and NO-Synthesize® on body composition, muscle strength and mass, markers of protein synthesis, and clinical safety markers in males. *Nutrition and Metabolism (Lond)*, 3:78, 2011.

Buford T, Cooke M, Shelmadine B, Hudson G, Redd L, **Willoughby DS**. Differential gene expression of FoxO1, ID1, and ID3 between young and older men and associations with muscle mass and function. *Aging Clinical and Experimental Research*, 23:170-74, 2011.

Shelmadine B, Hudson G, Buford T, Grothe A, Moreillon J, Gutierrez J, Bowden R, Wilson R, **Willoughby DS**. Effects of thirty days of creatine supplementation on total homocysteine in a pilot study of end-stage renal disease patients. *Journal of Renal Nursing*, 4:6-11, 2012.

Bunn J, **Willoughby DS**. Effects of 28 days of protein and amino acid supplementation and ankle immobilization on gastrocnemius muscle mass and strength and atrophy- and apoptosis-related gene expression in males. *Journal of Nutrition and Metabolism*, 2011:539690. doi: 10.1155/2011/539690.

Beavers K, Serra M, Beavers D, Hudson G, **Willoughby DS**. The lipid lowering effects of four weeks of daily soymilk or dairy milk ingestion in a postmenopausal female population. *Journal of Medicinal Food*, 13:650-56, 2010.

Beavers K, Serra M, Beavers D, Cooke M, **Willoughby DS**. Soy and the exercise induced inflammatory response in postmenopausal women. *Applied Physiology, Nutrition, and Metabolism*, 35:261–269, 2010.

Gutierrez J **Willoughby DS**. Slimming slumber? How sleep deprivation manipulates appetite and weight. *Nutrition Today*, 45:77-81, 2010.

Buford T, Cooke M, Manini T, Leeuwenburgh C, **Willoughby DS**. Effects of age and sedentary lifestyle on skeletal muscle NF-kappaB signaling in men. *Journal of Gerontology A: Biological Science and Medical Science*, 65:532-37, 2010.

Kerksick C, Kreider R, **Willoughby, D.S**. Intramuscular adaptations to eccentric exercise and antioxidant supplementation. *Amino Acids*, 39:219-32, 2010.

Beavers K, Serra M, Beavers D, Cooke M, **Willoughby DS**. Soymilk supplementation does not alter plasma markers of inflammation and oxidative stress in postmenopausal women. *Nutrition Research*, 29:616-22, 2009.

Buford T, Cooke M, Shelmadine B, Hudson G, Redd L, **Willoughby DS**. Effects of eccentric treadmill exercise on inflammatory gene expression in human skeletal muscle. *Applied Physiology, Nutrition, and Metabolism*, 34:745-53, 2009.

Wilborn C, Taylor L, Greenwood M, Kreider R, **Willoughby DS**. Effects of different intensities of resistance exercise on regulators of myogenesis. *Journal of Strength and Conditioning Research*, 23:2179-87, 2009.

Buford T, Cooke M, Redd L, Hudson G, Shelmadine B, Curts C, **Willoughby DS**. Dietary protease supplementation attenuates eccentric-exercise induced force production decrements by augmenting leukocyte activity and systemic inflammation. *Medicine and Science in Sports and Exercise*, 41:1908-14, 2009.

Buford T, Cooke M, **Willoughby DS**. Resistance exercise in older women up-regulates expression of numerous inflammation-related genes within skeletal muscle. *European Journal of Applied Physiology*, 2009.

Shelmadine B, Buford T, Hudson G, Redd L, Cooke M, Leutholtz B, **Willoughby DS**. Effects of 28 days of NO-Shotgun supplementation on body composition, muscle strength and mass, markers of satellite cell activation, and clinical safety markers in males. *Journal of the International Society of Sports Nutrition*, 6:16, 2009.

Jitomir J, **Willoughby DS**. Cassia cinnamon for the attenuation of glucose intolerance and insulin resistance resulting from sleep loss. *Journal of Medicinal Food*, 12:467-72, 2009.

Spillane M, Schoch R, Cooke M, Harvey T, Greenwood M, Kreider R, **Willoughby DS**. The effects of creatine ethyl ester supplementation combined with heavy resistance training on body composition, muscle performance, and serum and muscle creatine levels. *Journal of the International Society of Sports Nutrition*, 6:6, 2009.

Jitomir J, Nassar E, Culbertson J, Moreillon J, Buford T, Hudson G, Cooke M, Kreider R, **Willoughby DS**. The acute effects of the thermogenic supplement Meltdown™ on energy expenditure, fat oxidation, and hemodynamic responses in young, healthy males. *Journal of the International Society of Sports Nutrition*, 5:23, 2008.

Jitomir J, **Willoughby DS**. Leucine for the retention of lean mass on a hypocaloric diet. *Journal of Medicinal Foods*, 11:606-609, 2008.

Kerksick C, Taylor L, Harvey A, **Willoughby DS**. Gender-related differences in muscle injury, oxidative stress, and apoptosis. *Medicine and Science in Sports and Exercise*, 40:1772-80, 2008.

Buford T, **Willoughby DS**. Impact of DHEA(S) and cortisol on immune function in aging: A brief review. *Applied Physiology, Nutrition, and Metabolism*, 33: 429-433, 2008.

Ferriera M, **Willoughby DS**. Alcohol consumption: The good, the bad, and the indifferent. *Applied Physiology, Nutrition, and Metabolism*, 33:12-20, 2008.

Roberts M, Taylor L, Wismann J, Wilborn C, Kreider R, **Willoughby DS**. Effects of ingesting JavaFit™ Energy Extreme functional coffee on aerobic and anaerobic fitness markers in college-aged caffeine consumers. *Journal of the International Society of Sports Nutrition*, 4:21, 2007.

Roberts M, Iosia M, Kerksick C, Taylor L, Campbell B, Wilborn C, Harvey T, Cooke M, Rasmussen C, Greenwood M, Wilson R, Jitomir J, Kreider R, **Willoughby DS**. Effects of arachidonic acid supplementation on training adaptations in resistance-trained males. *Journal of the International Society of Sports Nutrition*, 4:21, 2007.

Nassar E, Mulligan C, Taylor L, Kerksick C, Galbreath M, Greenwood M, Kreider R, **Willoughby DS**. Effects of prophylactic N-Acetyl-5-methoxytryptamine (melatonin) supplementation and resistance exercise on serum growth hormone levels and other hormones of the HPA axis in young males and females. *Journal of the International Society of Sports Nutrition*, 4:14, 2007.

Rohle D, Wilborn C, Taylor L, Mulligan C, **Willoughby DS**. Effects of eight weeks of aromatase inhibition using the nutritional supplement 6-OXO (androst-4-ene-3,6,17-trione): Effects on serum hormone profiles and clinical safety markers in resistance-trained, eugonadal males. *Journal of the International Society of Sports Nutrition*, 4:13, 2007.

Taylor L, Wilborn C, Harvey T, Wismann J, **Willoughby DS**. Acute effects of ingesting Java Fit™ energy extreme functional coffee on resting energy expenditure and hemodynamic responses in male and female coffee drinkers. *Journal of the International Society of Sports Nutrition*, 4:10, 2007.

Schoch R, Greenwood M, **Willoughby DS**. The regulation and expression of the creatine transporter: a brief review of creatine supplementation in humans and animals. *Journal of the International Society of Sports Nutrition*, 3:60-65, 2006.

Wismann J, **Willoughby DS**. Gender differences in carbohydrate metabolism and carbohydrate loading. *Journal of the International Society of Sports Nutrition*, 3:28-35, 2006.

Kerksick C, **Willoughby DS**. The antioxidant role of glutathione and n-acetyl-cysteine supplements and exercise-induced oxidative stress. *Journal of the International Society of Sports Nutrition*, 2:38-44, 2005.

Wilborn C, **Willoughby DS**. The role of dietary protein intake and resistance training on myosin heavy chain expression. *Journal of the International Society of Sports Nutrition*, 1:27-34, 2004.

#### **Peer-Reviewed Research Publications (as Co-Investigator)**

- As Co-Investigator, my contribution was between 20% - 40% with those indicating that in some cases I assisted in developed experimental design and mentoring graduate students (for those projects which were graduate student authored), assisted in laboratory analyses, and assisted in manuscript preparation.

#### **Published**

Newmire DE, Willoughby DS. Partial range of motion resistance training: A feasible bodybuilding training regiment for local or regional muscle hypertrophy. *Strength and Conditional Journal*. 2020, E-pub ahead of print.

Yoo J, Funderburk L, **Willoughby D.S**. Leucine supplementation coupled with resistance training to promote weight loss in peri- and post-menopausal women and the effects on body image. *American Journal of Health Studies*. 34(2):23-27, 2019.

Tiller NB, Roberts JD, Beasley L, Chapman S, Pinto JM, Smith L, Wiffin M, Russell M, Sparks SA, Duckworth L, O'Hara J, Sutton L, Antonio J, **Willoughby DS**, Tarpey MD, Smith-Ryan AE, Ormsbee MJ, Astorino TA, Kreider RB, McGinnis GR, Stout JR, Smith JW, Arent SM, Campbell BI, Bannock L. International Society of Sports Nutrition Position Stand: nutritional considerations for single-stage ultra-marathon training and racing. *Journal of the International Society of Sports Nutrition*. 16:50, 2019.

Newmire D, Rivas E, Deemer S, **Willoughby DS**, Ben-Ezra V. Impact of a large bolus dose of L-leucine and L-isoleucine on enteroendocrine and pancreatic hormones and glycemia in healthy, inactive adults. *Nutrients*, 11, 2650; doi:10.3390/nu11112650, 2019.

Funderburk L, Beretich K, Chen M, **Willoughby DS**. Efficacy of L-leucine supplementation coupled with resistance training in un-trained mid-life women. *Journal of the American College of Nutrition*. <https://doi.org/10.1080/07315724.2019.1650675>. 2019.

Gepner Y, Hoffman JR, Hoffman MW, Zelicha H, **Willoughby DS**, Feinstein U, Ostfeld I. The effect of two-weeks of inactivated probiotic bacillus coagulans on endocrine, inflammatory and performance responses during intense military training. *Journal of Strength and Conditioning Research*. 2019.

Kalman D, Hewlings S, Lee R, Bentley J, Foster R, Morton K, **Willoughby DS**. A pharmacokinetic evaluation of isolated chicken protein as compared to beef protein in healthy active adults. *Journal of Food Science and Nutrition*. 4:037, 2018.

Newmire D, **Willoughby DS**. Partial compared to full range of motion resistance training for muscle hypertrophy: A brief review and an identification of potential mechanisms. *Journal of Strength and Conditioning Research*. 32:2652-64, 2018.

Kalman D, Escalante, A, Hewlings S, **Willoughby DS**. The body composition effects of extra protein in elite mixed martial artists undergoing frequent training over a six-week period. *EC Nutrition*. 13.6:396-401, 2018.

Park J, Koh Y, **Willoughby DS**. Exercise-induced changes in stress hormones and cell adhesion molecules in obese men" accepted for publication in the journal. *Journal of Inflammation Research*. 11:69-75, 2018.

Kerksick CM, Arent S, Schoenfeld BJ, Stout JR, Campbell B, Wilborn CD, Taylor L, Kalman D, Smith-Ryan AE, Kreider RB, **Willoughby D**, Arciero PJ, VanDusseldorp TA, Ormsbee MJ, Wildman R, Greenwood M, Ziegenfuss TN, Aragon AA, Antonio J. International society of sports nutrition position stand: nutrient timing. *Journal of the International Society of Sports Nutrition*. 14:33, 2017.

Jäger R, Kerksick CM, Campbell BI, Cribb PJ, Wells SD, Skwiat TM, Purpura M, Ziegenfuss TN, Ferrando AA, Arent SM, Smith-Ryan AE, Stout JR, Arciero PJ, Ormsbee MJ, Taylor LW, Wilborn CD, Kalman DS, Kreider RB, **Willoughby DS**, Hoffman JR, Krzykowski JL, Antonio J. International Society of Sports Nutrition Position Stand: protein and exercise. *Journal of the International Society of Sports Nutrition*. 14:20, 2017.

Aragon AA, Schoenfeld BJ, Wildman R, Kleiner S, VanDusseldorp T, Taylor L, Earnest CP, Arciero PJ, Wilborn C, Kalman DS, Stout JR, **Willoughby DS**, Campbell B, Arent SM, Bannock L, Smith-Ryan AE, Antonio J. International society of sports nutrition position stand: diets and body composition. *Journal of the International Society of Sports Nutrition*. 14:16, 2017.

Shakoor E, Sadeghi H, Jahromia MK, Salesi M, **Willoughby DS**. The effect of concurrent aerobic and anaerobic exercise on stress, anxiety, depression, and blood pressure in renal transplant female patients. *International Journal of Kinesiology and Sport Science*. 4(4): 25-31, 2016.

Faucher MA, Hastings-Tolsma M, Joon JS, **Willoughby DS**, Bader SG. Gestational weight gain and preterm birth in obese women: A systematic review and meta-analysis. *British Journal of Obstetrics and Gynaecology*. 123(2), 199–206, 2016.

Gonzalez AM, Hoffman JR, Stout JR, Fukuda DH, **Willoughby DS**. Intramuscular anabolic signaling and endocrine response following resistance exercise: Implications for muscle hypertrophy. *Sports Medicine*, 2015, DOI 10.1007/s40279-015-0450-4.

Park J, Schwarz N, **Willoughby DS**, Koh Y. Acute Changes in Soluble Adhesion Molecules Following Different Intensities of Resistance Exercise. *International Journal of Sports Science*. 5(6), 234-239, 2015.

Gonzalez AM, Hoffman JR, Townsend JR, Jajtner AR, Boone CH, Beyer KS, Baker KM, Wells AJ, Robinson EH, Church DD, Oliveira LP, **Willoughby DS**, Fukuda DH, Stout JR. Intramuscular anabolic signaling and endocrine response following different resistance exercise protocols in trained men. *Physiological Reports*, 3:7, 2015.

Gonzalez AM, Hoffman JR, Townsend JR, Jajtner AR, Wells AJ, Beyer KS, **Willoughby DS**, Oliveira LP, Fukuda DH, Fragala MS, Stout JR. Association between myosin heavy chain protein isoforms and intramuscular anabolic signaling following resistance exercise in trained men. *Physiological Reports*, 3:1, 2015.

Rosene JM, **Willoughby DS**, Matthews TD, Chicoine R, DiJoseph J, Gabellieri J, Puck R. The effects of 3 versus 7 days of creatine supplementation on intramuscular creatine and thermoregulation in the heat. *Journal of Athletic Enhancement*, 3:6, 2015.

Moore C, Crocker D, Fahlman A, Moore M, **Willoughby DS**, Robbins K, Kanatous S, Trumble S. Ontogenetic changes in skeletal muscle fiber type, fiber diameter and myoglobin concentration in the Northern elephant seal (*Mirounga angustirostris*). *Frontiers in Physiology, Aquatic Physiology*, 5:217-21, 2014.

Moore CD, Fahlman A, Moore MJ, **Willoughby D**, Robbins K, Trumble SJ. Significance of muscle fiber type in biopsied elephant seals. *Integrative and Comparative Biology*, 54:E144, 2014.

Kerksick CM, **Willoughby DS**, Kouretas D, Tsatsakis A. Intramuscular responses with muscle damaging exercise and the interplay between multiple intracellular networks: A human perspective. *Food and Chemical Toxicology*, 61:136-43, 2013.

Magrans-Courtney T, Wilborn C, Rasmussen C, Ferreira M, Greenwood L, Campbell B, Kerksick C, Nassar E, Li R, Iosia M, Cooke M, Dugan K, **Willoughby DS**, Soliah L, Kreider R. Effects of diet type and supplementation of glucosamine, chondroitin, and MSM on body composition, functional status, and markers of health in women with knee osteoarthritis initiating a resistance-based exercise and weight loss program. *Journal of the International Society of Sports Nutrition*, 8:8, 2011.

Wilborn C, Taylor L, Poole C, Foster C, **Willoughby DS**, Kreider R. Effects of a purported aromatase and 5  $\alpha$ -reductase inhibitor on hormone profiles in college-age men. *International Journal of Sport Nutrition and Exercise Metabolism*, 20:457-465, 2010.

Poole C, Bushey B, Foster C, Campbell B, **Willoughby DS**, Kreider R, Taylor L, Wilborn C. The effects of a commercially available botanical supplement on strength, body composition, power output, and hormonal profiles in resistance-trained males *Journal of the International Society of Sports Nutrition*, 7:34, 2010

Kreider R, Wilborn C, Taylor L, Campbell B, Almada A, Collins R, Cooke M, Earnest C, Greenwood M, Kalman D, Kerksick C, Kleiner S, Leutholtz B, Lopez H, Lowery L, Mendel R, Smith A, Spano M, Wildman R, **Willoughby DS**, Ziegenfuss T, Antonio J. ISSN exercise and sports nutrition review: Research and recommendations. *Journal of the International Society of Sports Nutrition*, 7:7, 2010.

Goldstein E, Ziegenfuss T, Kalman D, Kreider R, Campbell B, Wilborn C, Taylor L, **Willoughby DS**, Stout J, Graves S, Wildman R, Ivy J, Spano M, Smith A, Antonio J. International society of sports nutrition position stand: Caffeine and performance. *Journal of the International Society of Sports Nutrition*, 7:5, 2010.

Hoffman J, Kraemer W, Bhasin S, Storer T, Ratamess N, Haff G, **Willoughby DS**, Rogol A. Position stand on androgens and human growth hormone use. *Journal of Strength and Conditioning Research*, 23:S1-77, 2009.

Poole C, Bushey B, Pena E, Constancio E, Jones T, Dufour F, Ervin N, Clemens B, **Willoughby D**, Kreider R, Foster C, Taylor L, Wilborn C. Effects of TESTOSURGE supplementation on strength, body composition and hormonal profiles during an 8-week resistance training program. *Journal of the International Society of Sports Nutrition*, 6:1-11, 2009

Wilborn C, Bushey B, Poole C, Taylor L, Foster C, Campbell B, Willoughby D, Kreider R. Effects of Torabolic supplementation on strength and body composition during an 8-week resistance training program. *Journal of the International Society of Sports Nutrition*, 5:1-6, 2008.



Cooke M, Iosia M, Buford T, Shelmadine B, Hudson G, Kerksick C, Rasmussen C, Greenwood M, Leutholtz B, **Willoughby DS**, Kreider R. Effects of acute and 14-day coenzyme Q10 supplementation on exercise performance in both trained and untrained individuals. *Journal of the International Society of Sports Nutrition*, 5:8, 2008.

Greenwood M, Kreider R, Greenwood L, **Willoughby DS**, Byars A. Creatine supplementation does not increase the incidence of injury or cramping in college baseball players. *Journal of Exercise Physiology*, 6:16-23, 2003.

Kreider R, **Willoughby DS**, Greenwood M, Parise G, Payne E, Tarnopolsky M. Effects of serum creatine supplementation on muscle creatine and phosphagen Levels. *Journal of Exercise Physiology*, 6:24-33, 2003.

Kreider R, Burke E, Clark J, Earnest C, Greenwood M, Harris R, Kalman D, Kleiner S, Serrano E, Volek J, Ziegenfuss T, **Willoughby DS**. The neurosurgeon in sport: awareness of the risks of heatstroke and dietary supplements. *Neurosurgery*, 52:252-255, 2003.

Willoughby L, **Willoughby DS**, Moses P. Mentors for beginning college student athletes at Texas A&M University: A possible model and aid for academic success. *The Academic Athletic Journal*, Fall, 1-12, 1991.

Wright D, Snowden S, **Willoughby DS**. Summary KR: How much information is used from the summary? *Journal of Human Movement Studies*, 19:119-128, 1990.

### **Non-Refereed Publications**

**Willoughby DS**. Your health and fitness for 2014. *Hewitt Life Magazine*, January, 18-19, 2014.

**Willoughby DS**. Your guide to fat content. Good fats versus bad fats: An ongoing dietary dilemma. *Hewitt Life Magazine*, December 7, 2013.

**Willoughby DS**. Gaining weight and the relationship between carbohydrate and fat. *Hewitt Life Magazine*, November 7, 2013.

**Willoughby DS**. The glycemic index. *Hewitt Life Magazine*, October 18-19, 2013.

**Willoughby DS**. Dietary protein and resistance training. *Hewitt Life Magazine*, September 7, 2013.

**Willoughby DS**. Resistance training for the older adult, *Hewitt Life Magazine*, August 18-19, 2013,

**Willoughby DS**. Avoiding dehydration while exercising in the heat. *Hewitt Life Magazine*, August 17-18, 2013.

**Willoughby DS.** The effects of resistance exercise and nutritional supplementation on myogenic regulatory factors. *Sports Nutrition Insider, Spring*:58-60, 2009.

**Willoughby DS.** The effects of resistance exercise and nutritional supplementation on myogenic regulatory factors. *Sports Nutrition Insider, Summer*:44-45.

**Willoughby DS.** Creatine's antioxidant potential. *Flex Magazine, May*:136, 2005.

**Willoughby DS.** Myostatin blocking supplements: Scientifically validated snake-oil. *AST Sport Science, Spring*, 2004.

**Willoughby DS.** Scientific basis of  $\beta$ -hydroxy- $\beta$ -methylbutyrate (HMB) in bodybuilding and athletics. *Scientific Bodybuilding Journal, 2*:15-17, 1997.

**Willoughby DS.** The anabolic role of insulin-like growth factor in promoting skeletal muscle hypertrophy. *Scientific Bodybuilding Journal, 1*:11-12, 1997.

**Willoughby DS.** The effects of resistance training on myosin isoform gene expression in adult human skeletal muscle: A molecular approach. *Scientific Bodybuilding Journal, 1*:9-12, 1996.

**Willoughby DS.** Delayed onset muscle soreness: A possible physiological mechanism and implications for athletes. *Natural Bodybuilding and Fitness, August*:72, 1995.

**Willoughby DS.** Weight training in the elderly: The health-related basis for increasing muscle strength. *Mobile Health Journal, 7*:20-22, 1995.

**Willoughby DS.** Summer conditioning: Strength training for football. *United States Sports Academy Sport Supplement, 3*:7, 1995.

Roozen M, **Willoughby DS.** Incorporating the Olympic lifts into your strength and conditioning program. *Texas Coach, November*:48-52, 1994.

**Willoughby DS.** Miracle Muscles? *Muscle and Fitness, October*, 1994.

**Willoughby DS.** Clenbuterol: Agonist or Enemy. *Muscle and Fitness, January*, 1994.

**Willoughby DS.** Anaerobic power: Incorporating principles to increase its capacity through weight training. *Texas Coach, August*:15-18, 1993.

**Willoughby DS.** Strength training involving periodization: The physiological and training-related mechanisms which make it effective. *Texas Coach, October*:35-36.1991.

**Willoughby DS.** Muscle fiber composition, distribution, and somatotype: Can they be used as screening tools to accurately predict an individual's athletic success? *Texas Coach*, February:56-59, 1991.

**Willoughby DS.** The parallel squat: A kinesiological analysis, rehabilitative and training protocol, and practical implications for coaches. *Texas Coach*, October:36-39, 1990.

**Willoughby DS.** Delayed onset muscle soreness: A possible physiological etiology and practical implications for coaches. *Texas Coach*, August:34-36, 1990.

**Willoughby DS.** The prevention of sports injuries in high school athletes through strength training. *Texas Coach*, March:24-25, 1990.

## PRESENTATIONS

### Peer-Reviewed Posters as Principal Investigator/First Author

**Willoughby DS,** Wilborn C, Taylor L. Effects of resistance exercise intensity on anabolic growth factor expression in serum and skeletal muscle. Annual meeting of the International Society of Sports Nutrition, Las Vegas, NV, June 2007.

**Willoughby DS,** Wilborn C, Taylor L. Resistance exercise intensity does not differentially affect skeletal muscle myostatin gene expression but does increase serum myostatin propeptide levels. Annual meeting of the International Society of Sports Nutrition, Las Vegas, NV, June 2006.

**Willoughby DS.** Estradiol attenuates myostatin mRNA expression after eccentric exercise in females. Annual conference of the American College of Sports Medicine, Denver, CO, May 2006.

**Willoughby DS,** Stout J, Wilborn C, Taylor L, Kerksick C. Effects of heavy resistance training and proprietary whey+casein+leucine protein supplementation on muscle strength and mass and MHC isoform mRNA expression. Annual meeting of the National Strength and Conditioning Association, Las Vegas, NV, July 2005.

**Willoughby DS,** Stout J, Wilborn C, Taylor L, Kerksick C. Effects of heavy resistance training and proprietary whey+casein+leucine protein supplementation on serum and skeletal muscle IGF-1 levels and IGF-1 and MGF mRNA expression. Annual meeting of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

**Willoughby DS,** Kerksick C, Bouw B, Harvey A. Effects of eccentric muscle contractions on estrogen receptor- $\alpha$  and myostatin mRNA expression in males and females. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

**Willoughby D S**, Taylor L, Taylor M. Effects of eccentric muscle contractions on skeletal muscle myostatin mRNA expression in humans. Annual conference of the Federation of the American Societies of Experimental Biology, San Diego, April 2005.

**Willoughby DS**, Taylor L, Taylor, M. Effects of eccentric muscle contractions of serum myostatin and propeptide levels in humans. Annual conference of the Federation of the American Societies of Experimental Biology, San Diego, April 2005.

**Willoughby D S**, Bouw B, Gillam K, Ziegenfuss T. Effects of a single dose of Xenadrine-NRG on heart rate and blood pressure responses in males and females. Annual meeting of the International Society of Sports Nutrition, Las Vegas, NV, June 2004.

**Willoughby DS**. Effects of heavy resistance training on myostatin mRNA and protein expression. Annual conference of the American College of Sports Medicine, Indianapolis, IN, May 2004.

**Willoughby DS**, Rosene J. Effects of oral creatine and resistance training on Myogenic regulatory factor expression. Annual conference of the American College of Sports Medicine, San Francisco, CA, May 2003.

**Willoughby DS**, Brown M, Taylor L. Effects of repeated bouts of eccentric exercise on muscle injury and HSP-72 and ubiquitin expression. Annual conference of the Federation of the American Societies of Experimental Biology, San Diego, April 2003.

**Willoughby DS**, Taylor L, Greenwood M. Effects of training status on HSP-72 and ubiquitin expression and serum cortisol after three sequential bouts of heavy resistance exercise. Annual conference of the Federation of the American Societies of Experimental Biology, San Diego, April 2003.

**Willoughby DS**, Rosene J, Myers J. Ubiquitin and HSP-72 expression and caspase-3 activity after a single bout of eccentric exercise. Annual conference of the American College of Sports Medicine, St. Louis, MO, May 2002.

**Willoughby DS**, Nelson M. Role of the myogenic regulatory factors, Myo-D, myogenin, and Id-1 in myosin heavy chain mRNA expression after an acute bout of heavy resistance training. Annual conference of the American Society of Exercise Physiologists, Memphis, TN, September 2001.

**Willoughby DS**, Priest J, Nelson M. Expression of the stress proteins, ubiquitin and HSP-72, and myofibrillar protein content after passive leg cycling in persons with spinal cord injury. Annual conference of the American College of Sports Medicine. Baltimore, MD, May 2001.

**Willoughby DS**, Priest J. Role of heat shock protein-72, ubiquitin proteolysis, and myosin heavy chain mRNA and protein expression on myofibrillar protein accretion in spinal cord injured following passive leg cycling. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance. Dallas, TX, December 2000.

**Willoughby DS**, McFarlin B, Bois C, Encarnacion M. Interleukin-6 expression after two muscle injury-inducing exercise bouts. American Physiological Society's meeting for the Integrative Biology of Exercise. Portland, ME, September 2000.

**Willoughby DS**, Priest J, Jennings R. Myosin heavy chain mRNA and protein expression in spinal cord injured following passive leg cycling. Annual conference of the American College of Sports Medicine, Indianapolis, IN, June 2000.

**Willoughby DS**, Priest J, Jennings R. Qualitative myosin heavy chain and ubiquitin protease mRNA expression after voluntary leg cycling in spinal cord injured. Annual conference of the American College of Sports Medicine, Seattle, WA, June 1999.

**Willoughby DS**, Pelsue S. Myosin heavy chain mRNA expression in the elderly after weight training. Annual conference of the American College of Sports Medicine, Orlando, FL, June 1998.

**Willoughby DS**, Simpson S. Supplemental electromyostimulation and dynamic weight training: Effects on knee extensor strength and vertical jump of female collegiate athletes. Annual conference of the American College of Sports Medicine, Denver, CO, May 1997.

**Willoughby DS**, Roozen M, Barnes R. Low- and high-intensity exercise on cardiac function and efficiency of post-CABG patients. Annual conference of the American College of Sports Medicine, Cincinnati, OH, May 1996.

**Willoughby DS**, Simpson S. The effects of combined electromyostimulation and dynamic muscular contractions on the strength of college athletes. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Galveston, TX, December 1994.

**Willoughby DS**, Barnes W, Ingalls C, Smith S. Clenbuterol and exercise: Effects of a  $\beta_2$ -adrenoceptor agonist on locomotor endurance capacity and muscular force production. Annual conference of the American College of Sports Medicine, Seattle, WA, June 1993.

**Willoughby DS**. Effects of weight training programs involving periodization and partially-equated on upper and lower body strength. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Dallas, TX, February 1993.

**Willoughby DS**, Barnes W, Ingalls C, Smith S. Interaction between clenbuterol and exercise: Effects of a  $\beta_2$ -adrenergic agonist on anaerobic endurance capacity and force output. Annual conference of Texas Chapter of the American College of Sports Medicine, Ft. Worth, TX, January 1993, **Graduate Student Research Award**.

**Willoughby DS**, Green JS, Childs T, Sebesta T, Henderson D, Martindale T, Crouse S. Comparison of cardiac function between strength- and endurance-trained athletes with left ventricular hypertrophy. Annual conference of the Texas Chapter of the American College of Sports Medicine, Austin, TX, January 1992.

**Willoughby DS**, Gillespie J. A comparison of isotonic free weights and omnikinetic exercise machines on strength. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Lubbock, TX, December 1990.

**Willoughby DS**, Chilek D, Schiller D, Ball G, Coast J. The metabolic effects of a low, moderate, and high intensity free weight squat performance on trained weight lifters. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Lubbock, TX, December 1990.

#### **Peer-Reviewed Posters as Principal Investigator/Graduate Student Mentor**

Hwang P, Machek S, Cardaci T, Kim C, Wilburn D, Suezaki E, **Willoughby DS**. Six weeks of pyrroloquinoline quinone supplementation with aerobic training does not differentially improve aerobic performance adaptations within untrained young males. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2019.

Machek S, Hwang P, Cardaci T, Suezaki E, Kim C, Wilburn D, **Willoughby DS**. Total creatine and skeletal muscle characteristics in relation to Wilks Coefficient in both male and female powerlifters. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2019.

Suezaki E, Hwang P, Machek S, Cardaci T, Kim C, Wilburn D, **Willoughby DS**. Effects of pyrroloquinoline quinone supplementation with aerobic training on body composition in untrained males. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2019.

Wilburn D, Cardaci T, Machek S, Hwang P, **Willoughby DS**. Effects of carbohydrate supplementation on resistance exercise performance and index of fatigue. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2019.

Cardaci T, Machek S, Hwang P, Wilburn D, Suezaki E, **Willoughby DS**. Effects of curcumin and piperine on delayed onset muscle soreness and perceived exertion of a muscle damaging protocol. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2019.

Andre T, Gann J, Hwang P, **Willoughby DS**. Effect of a restrictive breathing mask on resistance exercise performance in resistance-trained males. Annual conference of the National Strength and Conditioning Association. Las Vegas, NV, July 2017.

Gann J, Andre T, Hwang P, **Willoughby DS**. The effects of hypohydration on muscular performance and markers of catabolism in resistance-trained females. Annual conference of the National Strength and Conditioning Association. Las Vegas, NV, July 2017.

Hwang P, Andre P, McKinley-Barnard S, Gann J, Morales E, Tinsley G, **Willoughby DS**. Effects of detraining and retraining on muscular strength, hypertrophy, and markers of muscle protein synthesis in trained males are not impacted by whey protein supplementation. Annual conference of the National Strength and Conditioning Association. New Orleans, LA, July 2016.

Morales E, Forsse J, Andre T, McKinley-Barnard S, Hwang P, Tinsley G, Davis J, Spillane M, Grandjean P, **Willoughby DS**.  $\beta$ -aminoisobutyric acid does not regulate exercise-induced UCP-3 expression in skeletal muscle. Annual conference of the International Society of Sports Nutrition, Clearwater, FL, June 2016.

Hwang P, Andre P, McKinley-Barnard S, Gann J, Morales E, Tinsley G, **Willoughby DS**. The Effects of Short-Term Detraining and Subsequent Retraining on Body Composition and Muscle Performance in Males Consuming a Whey Protein or Carbohydrate Supplement; Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, March 2016.

McCullough MO, Gann JJ, Andre TL, McKinley-Barnard SK, **Willoughby DS**. Effects of dehydration on resistance exercise performance: An ongoing study. Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, March 2016.

Hwang PS, Andre TL, McKinley-Barnard SK, Gann JJ, Morales FE, Tinsley GM, **Willoughby DS**, Effects of short-term detraining and subsequent retraining on body composition and muscle performance in males consuming a whey protein or carbohydrate supplement. Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, March 2016.

Morales E, Forsse JS, Andre TL, McKinley-Barnard SK, Hwang P, Tinsley G, Davis J, Spillane M, Grandjean P, **Willoughby DS**. Effect of pre-exercise nutrition on human skeletal muscle UCP3 expression. Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, March 2016.

Morales E, Forsse J, Andre T, McKinley-Barnard S, Hwang P, Tinsley G, Davis J, Spillane M, Grandjean P, **Willoughby DS**. Effect of Pre-Exercise Nutrition on Human Skeletal Muscle UCP3 Expression, International Conference for Advances in Skeletal Muscle Biology in Health and Disease, Gainesville FL, January 2016.

Andre T, McKinley-Barnard S, Gann J, Moulton C, **Willoughby DS**. Effects of creatine monohydrate supplementation on creatine transporter activity and creatine metabolism in resistance trained males. Annual conference of the International Society of Sports Nutrition, Austin, TX, June 2015.

Gann J, Andre T, McKinley-Barnard, Schoch R, **Willoughby DS**. Effects of a traditionally-dosed creatine supplementation protocol and resistance training on the skeletal muscle uptake and whole-body metabolism and retention of creatine in males. Annual conference of the International Society of Sports Nutrition, Austin, TX, June 2015.

McKinley-Barnard S, Andre T, Gann J, Knue E, **Willoughby DS**. Effects of a botanical anti-inflammatory nutritional supplement while participating in a resistance training program on indices of body composition and metabolic, cardiovascular, muscular, and hemodynamic function in obese females. Annual conference of the International Society of Sports Nutrition, Austin, TX, June 2015.

Spillane M, Schwarz N, **Willoughby DS**. Effects of 8 weeks of Stealth supplementation on body composition, muscle strength and mass, markers of satellite cell activation, and clinical safety markers in males. Annual conference of the International Society of Sports Nutrition, Austin, TX, June 2015.

Spillane M, Schwarz N, **Willoughby DS**. Higher-volume resistance exercise preferentially increases androgen receptor-DNA binding and canonical Wnt/ $\beta$ -catenin signaling in resistance-trained men. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2015.

Schwarz N, Spillane M, **Willoughby DS**. Peroxisome proliferator-activated  $\gamma$  coactivator-1 $\alpha$  (PGC-1 $\alpha$ ) mRNA expression correlates highly with mRNA expression of myosin heavy chain (MHC) isoforms in resistance-trained men. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2015.

Church D, Schwarz N, Spillane M, McKinley S, Andre T, Stout J, Hoffman J, **Willoughby DS**. L-leucine increases skeletal muscle IGF-1 peptide but has no effect on Akt/mTOR signaling in response to resistance exercise in trained men. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2015.

Spillane M, Schwarz N, **Willoughby DS**. Higher-volume resistance exercise in men increases skeletal muscle androgen receptor/DNA binding despite no corresponding increase in serum testosterone or muscle androgen receptor. Annual conference of the National Strength and Conditioning Association, Las Vegas, NV, July 2014.



Schwarz N, McKinley S, Spillane M, Gann J, Andre T, **Willoughby DS**. Effect of resistance exercise intensity on the mRNA expression of IGF-1 and MGF in human skeletal muscle. 13th Biennial Advances in Skeletal Muscle Biology in Health and Diseases Conference, Gainesville, FL, March, 2014.

Schwarz N, McKinley S, Spillane M, Gann J, Andre T, **Willoughby DS**. Effect of resistance exercise intensity on the mRNA expression of PGC-1 $\alpha$  isoforms in human skeletal muscle. Annual conference of the Texas Chapter of the American College of Sports Medicine, Ft. Worth, TX, February, 2014.

Spillane M, Schwarz N, **Willoughby DS**. Effects of lower- and higher-volume resistance exercise on serum testosterone and skeletal muscle androgen receptor content in men: Subsequent effects on the mRNA expression of IGF-1 peptide and myostatin in skeletal muscle. Annual conference of the National Strength and Conditioning Association. Las Vegas, NV, July 2013.

Spillane M, **Willoughby DS**. The effects of eight weeks of heavy resistance training and branched-chain amino acid supplementation on muscle performance and body composition. Annual conference of the International Society of Sports Nutrition, Colorado Springs, CO, June 2013.

Hudson G, Shelmadine B, Cooke M, Genovese J, Greenwood M, **Willoughby DS**. Resveratrol supplementation and changes in glucose, insulin, and mRNA expression following exercise in overweight females. Annual conference of the Society of General Internal Medicine, Orlando, FL, May 2012.

Shelmadine B, Hudson G, Cooke M, Genovese J, Greenwood M, **Willoughby DS**. Effects of Pterocarpus Marsupium on glucose and phosphorylated AMPK levels following exercise in overweight females. Annual conference of the Society of General Internal Medicine, Orlando, FL, May 2012.

Gutierrez J, Cooke M, Bowden R, Lutz R, Kane R, **Willoughby DS**. Endurance exercise before an oral glucose tolerance test in overweight and obese young women. Annual conference of the American College of Sports Medicine, Baltimore, MD, June 2010.

Gutierrez J, Cooke M, Bowden R, Lutz R, Kane R, **Willoughby, D.S.** *Cassia* cinnamon supplementation before an oral glucose tolerance test in overweight or obese young women. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Anaheim, CA, April 2010.

Hudson GM, BD Shelmadine, MB Cooke, J Genovese, M Greenwood, **Willoughby DS**. Effects of trans-resveratrol supplementation on mRNA expression of metabolically relevant proteins in response to an oral glucose tolerance test in obese females. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Anaheim, CA, April 2010.

Buford T, Cooke M, Redd L, Shelmadine B, Hudson G, **Willoughby DS**. Training status in older men affects transcriptional responsiveness following skeletal muscle damage. Annual conference of the American College of Sports Medicine, Baltimore, MD, June 2010.

Cooke M, LaBounty P, Buford T, Redd L, Hudson G, Shelmadine B, **Willoughby DS**. Effects of protein ingestion and resistance exercise on skeletal muscle signalling pathways in untrained individuals. Annual conference of the American College of Sports Medicine, Baltimore, MD, May 2010.

Shelmadine B, Brabham B, Hudson G, Buford T, McPheeters M, Kreider R, Cooke M, **Willoughby DS**. Effects of creatine supplementation and resistance training on skeletal muscle hypertrophy in older individuals. Annual conference of the American College of Sports Medicine, Baltimore, MD, June 2010.

Brabham B, Buford T, Shelmadine B, Hudson G, McPheeters M, Moreillon J, Greenwood M, Kreider R, Cooke M, **Willoughby DS**. Effects of creatine supplementation and resistance training on body composition and strength in older individuals. Annual conference of the American College of Sports Medicine, Baltimore, MD, June 2010.

Campbell B, La Bounty P, Oetken A, Greenwood M, Kreider R, **Willoughby DS**. Responses of serum IGF-1 after an acute bout of lower-body resistance exercise. Annual conference of the National Strength and Conditioning Association, Las Vegas, NV, July 2009.

Campbell B, La Bounty P, Oetken A, Greenwood M, Kreider R, **Willoughby DS**. The anabolic hormone response to a lower-body resistance exercise bout in conjunction with oral BCAA supplementation. Annual conference of the International Society of Sports Nutrition, New Orleans, LA June 2009.

Campbell B, La Bounty P, Oetken A, Kreider R, Greenwood M, **Willoughby DS**. The effects of branched chain amino acid supplementation on total lower body workout volume. Annual conference of the American College of Sports Medicine, Seattle, WA, May 2009.

La Bounty P, Campbell B, Oetken A, Lutz R, Kreider R, Greenwood M, **Willoughby DS**. The effect of leucine supplementation on total lower-body workout volume. Annual conference of the American College of Sports Medicine, Seattle, WA, May 2009.

Buford T, Cooke M, Redd L, Hudson G, Shelmadine B, Curts C, **Willoughby DS**. Dietary protease supplementation attenuates eccentric-exercise induced force production decrements by regulating leukocyte activity. Annual conference of the American College of Sports Medicine, Seattle, WA, May 2009.

Harvey T, Shelmadine B, Moreillon J, Liang J, Greenwood L, Greenwood M, Kreider R, **Willoughby DS**. Effects of concentric and eccentric muscle contractions on IL-6 signaling in human skeletal muscle and downstream regulation of HSP-72 gene expression. Annual conference of the National Strength and Conditioning Association Annual Conference, Las Vegas, NV, July 2009.

Li R, Ferreira M, Cooke M, La Bounty P, Campbell B, Kreider R, **Willoughby DS**. Myostatin gene expression in response to acute resistance exercise with amino acids and carbohydrate supplementation. Annual conference of the American College of Sports Medicine, Seattle, WA, May 2009.

Buford T, Cooke M, Redd L, Hudson G, Shelmadine B, Curts C, **Willoughby DS**. Dietary protease supplementation attenuates eccentric-exercise induced force production decrements by augmenting leukocyte activity and systemic inflammation. Annual conference of the Texas Chapter of the American College of Sports Medicine, Tyler, TX, February 2009. **Student research award**

Harvey T, Shelmadine B, Moreillon J, Liang J, Greenwood L, Greenwood M, Kreider R, **Willoughby DS**. Effects of different muscle contractions on IL-6 signaling in human skeletal muscle and potential cytoprotection. Annual conference of the Mid-Atlantic Regional Chapter of the American College of Sports Medicine, Harrisburg, PA, November 2008.

Buford T, Cooke M, **Willoughby DS**. Acute effects of heavy resistance exercise on the local inflammatory response in physically-active, post-menopausal women in the absence of hormone replacement therapy. Annual conference of the American Physiological Society's meeting for the Integrative Biology of Exercise. Hilton Head, SC, September 2008.

La Bounty P, Campbell B, Oetken A, **Willoughby DS**. The Effects of an Acute Lower-Body Resistance Exercise bout on IRS-1 and AKT Activation in Humans. Annual conference of the National Strength and Conditioning Association, Washington, D.C., July 2008.

Buford T, Cooke M, Hudson G, Shelmadine B, Redd L, Curts C, Walker B, Vela F, **Willoughby DS**. The effects of prophylactic protease supplementation on markers of muscle damage prior to and following intense eccentric exercise: Preliminary findings. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008. **Student research award**

Campbell B, La Bounty P, Oetken A, **Willoughby DS**. The effects of BCAA and leucine supplementation and lower-body resistance exercise on ERK 1/2 MAPK pathway signal transduction. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008.

La Bounty P, Campbell B, Oetken A, **Willoughby DS**. The effects of BCAA and leucine supplementation combined with acute lower-body resistance exercise on mTOR and 4E-BP1 in humans. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008.

Jitomir J **Willoughby DS**. Anthropometric changes of a female bodybuilder on a high protein, hypocaloric diet. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008.

Jitomir J, Nassar E, Culbertson J, Moreillon J, Cooke M, Buford T, Hudson G, **Willoughby DS**. VPX Meltdown shows trends of increasing resting energy expenditure as compared to placebo within 45 minutes of supplementation in a randomized, double-blind, cross-over clinical research trial. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008.

Wismann J, **Willoughby DS**. Effects of 28 days of protein and amino acid supplementation and ankle immobilization on gastrocnemius muscle mass and strength and atrophy- and apoptosis-related gene expression in males. Annual conference of the American College of Sports Medicine, New Orleans, LA, May 2008.

Kerksick C, **Willoughby DS**. Effects of prophylactic supplementation of carnosine, glutathione, and n-acetyl-cysteine on markers of oxidative stress and skeletal muscle proteolysis and apoptosis after eccentric contraction-induced injury in untrained males. Annual conference of the American College of Sports Medicine, New Orleans, LA, May 2007.

Taylor L, **Willoughby DS**. Effects of a single bout of low- and high-intensity resistance exercise on myogenic regulatory factor and MAP kinase expression. Annual conference of the American College of Sports Medicine, New Orleans, LA, May 2007.

Wilborn C, **Willoughby DS**. Effects of a periodized resistance training program on myosin heavy chain mRNA and MAP kinase expression. Annual conference of the American College of Sports Medicine, New Orleans, LA, May 2007.

Kerksick C, Campbell B, **Willoughby DS**. Changes in muscle damage markers, soreness, and strength after a 14-day prophylactic period of antioxidant supplementation followed by eccentric exercise. Annual conference of the National Strength and Conditioning Association, Washington, DC, July 2006.

Nassar E, Mulligan C, Taylor L, Kerksick C, Galbreath M, Greenwood M, **Willoughby DS**. Effects of prophylactic N-Acetyl-5-methoxytryptamine (melatonin) supplementation and resistance exercise on serum growth hormone levels and the hypothalamus-pituitary-adrenal axis in young males and females. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2006.

Roberts M, Kerksick C, Taylor L, Iosia M, Campbell B, Wilborn C, Harvey T, Wilson R, Greenwood M, Kreider R, **Willoughby DS**. Hormonal and intramuscular adaptations over 50 days of concomitant arachidonic acid supplementation and resistance training. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2006.

Kerksick C, Taylor L, Bouw B, Harvey A, **Willoughby DS**. The protective effect of estradiol against oxidative stress, eccentric muscle injury, and skeletal muscle apoptosis in Males and Females. Annual conference of the American College of Sports Medicine, Denver, CO, May 2006.

Watkins A, Mitchell J, **Willoughby DS**. The thermoprotective effects of HSP-72 in response to exercise in the heat. Annual conference of the American College of Sports Medicine, Denver, CO, May 2006.

Kerksick C, **Willoughby DS**. The effects of 14-Days of prophylactic supplementation of N-acetyl-cysteine and EGCG on oxidative stress, exercise-induced muscle injury, and skeletal muscle apoptosis in males. Annual conference of the Federation of the American Societies of Experimental Biology, San Francisco, CA, April 2006.

Taylor L, **Willoughby DS**. Raf-1, MEK 1, and ERK 1/2 MAPK activity after heavy resistance exercise. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, San Francisco, CA, April 2006.

Wilborn C, **Willoughby DS**. Eight weeks of aromatase inhibition using the nutritional supplement Novedex XT: Effects on serum steroid hormones, body composition, and clinical safety markers in young, eugonadal males. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, San Francisco, CA, April 2006.

Nassar E, Mulligan C, **Willoughby DS**. Effects of a single dose of melatonin and heavy resistance exercise on serum growth hormone levels and the hypothalamo-pituitary-adrenal axis. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, San Francisco, CA, April 2006.

Kerksick C, **Willoughby DS**. The effects of 14-days of prophylactic supplementation of N-acetyl-cysteine and EGCG on oxidative stress, exercise-induced muscle injury, and skeletal muscle apoptosis in males. Annual conference of the Texas Chapter of the American College of Sports Medicine, Denton, TX, February 2006.

Wilborn C, **Willoughby DS**. Eight weeks of aromatase inhibition using the nutritional supplement Novedex XT: Effects on serum steroid hormones, body composition, and clinical safety markers in young, eugonadal males. Annual conference of the Texas Chapter of the American College of Sports Medicine, Denton, TX, February 2006.

Nassar E, Mulligan C, **Willoughby DS**. Effects of a single dose of melatonin and heavy resistance exercise on serum growth hormone levels and the hypothalmo-pituitary-adrenal axis. Annual conference of the Texas Chapter of the American College of Sports Medicine, Denton, TX, February 2006.

Harvey T, Taylor L, **Willoughby DS**. Effects on concentric and eccentric muscle contractions of serum IL-6 and IL-10 levels. Annual conference of the Texas Chapter of the American College of Sports Medicine, Denton, TX, February 2006.

Roberts M, Taylor L, **Willoughby DS**. Effects on concentric and eccentric muscle contractions of serum PGF2-alpha levels. Annual conference of the Texas Chapter of the American College of Sports Medicine, Denton, TX, February 2006.

Kerksick C, Taylor L, Bouw B, Harvey A, **Willoughby DS**. The protective effect of estradiol against oxidative stress, exercise-induced muscle injury, and skeletal muscle apoptosis in males and females. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

Wilborn C, Taylor L, Kerksick C, Stout J, **Willoughby DS**. Effects of heavy resistance training and proprietary whey+casein+leucine protein supplementation on muscle strength and mass and MHC isoform mRNA expression. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005. **Student research award**

Moulton C, Eckerson J, Fry A, Moore C, Schilling B, **Willoughby DS**. The effects of two different creatine formulations on human skeletal muscle creatine transporter mRNA expression. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

Taylor L, Wilborn C, Harvey T, Wismann J, **Willoughby DS**. The effects of JavaFit Energy Extreme coffee ingestion on resting energy expenditure and hemodynamic responses. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

Roberts M, Taylor L, Wismann J, Wilborn C, **Willoughby DS**. The effects of JavaFit Energy Extreme coffee ingestion on aerobic and anaerobic exercise performance. Annual conference of the International Society of Sports Nutrition, New Orleans, LA, June 2005.

Taylor L, **Willoughby DS**. Effects of hind-limb un-weighting on myostatin mRNA expression in fast- and slow-twitch rodent muscles. Annual conference of the American Physiological Society's meeting for the Federation of the American Societies of Experimental Biology, San Diego, April 2005.

Taylor L, **Willoughby DS**. Effects of hind-limb un-weighting on myostatin mRNA expression in fast- and slow-twitch rodent muscles. Annual conference of the Texas Chapter of the American College of Sports Medicine, Dallas, TX, March 2005. **Student research development award**

Wilborn C, **Willoughby DS**. Effects of heavy resistance training and proprietary whey and casein protein supplementation on muscle strength and mass and MHC isoform mRNA expression. Annual conference of the Texas Chapter of the American College of Sports Medicine, Dallas, TX, March 2005.

Watkins A, **Willoughby DS**, Cheek, D., & Mitchell, J. Effects of exercise and prior heat stress on heat acclimation and HSP-72 expression. Annual conference of the Texas Chapter of the American College of Sports Medicine, Dallas, TX, March 2005. **Student research award**

Harvey A, Watkins A, Taylor L, **Willoughby DS**. Effects of heavy resistance exercise on skeletal muscle IL-6 expression and serum IL-10. Annual conference of the American College of Sports Medicine, Indianapolis, IN, May 2004.

Harvey A, Watkins A, Taylor M, **Willoughby DS**. Effects of sequential bouts of heavy resistance exercise on IL-6 and IL-6 receptor expression in skeletal muscle. Annual conference of the Texas Chapter of the American College of Sports Medicine, Tyler, TX, February 2004. **Student research award**

Watkins A, Harvey A, Mitchell J, **Willoughby DS**. Effects of repeated exercise bouts in the heat on the expression of skeletal muscle HSP-72. Annual conference of the Texas Chapter of the American College of Sports Medicine, Tyler, TX, February 2004. **Student research award**

Sultemeire S, Smith J, Mitchell J, **Willoughby DS**. Immunological and metabolic responses of the spinal cord injured to active and passive leg cycling exercise. Annual conference of the American College of Sports Medicine, San Francisco, CA, May 2003.

Taylor L **Willoughby DS**. Effects of training status on HSP-72 and ubiquitin expression after three sequential bouts of heavy resistance exercise. Annual conference of the Texas Chapter of the American College of Sports Medicine, Houston, TX, March 2003. **Student research award**

Sultemeire S, Smith J, Mitchell J, **Willoughby DS**. Immunological and metabolic responses of the spinal cord injured to active and passive forms of leg cycling exercise. Annual conference of the Texas Chapter of the American College of Sports Medicine, Houston, TX, March 2003. **Student research award**

Sultemeire S, Mitchell J, **Willoughby DS**, Effect of carbohydrate status of lymphocyte HSP-72 expression. Annual conference of the Texas Chapter of the American College of Sports Medicine, Southwestern University, February 2002. **Student research award**

Manigold B, Sultemeire S, **Willoughby DS**. Effects of skeletal muscle immobilization of HSP-72 and ubiquitin expression: A case study. Annual conference of the Texas Chapter of the American College of Sports Medicine, Southwestern University, February 2002.

Brown M, Taylor L, **Willoughby DS**. HSP-72 and ubiquitin expression after repeated bouts of eccentric exercise. Annual conference of the Texas Chapter of the American College of Sports Medicine, Georgetown, TX, February 2002. **Student research award**

Nelson M, Bois C, Brown M, **Willoughby DS**. Heat shock protein-72 mRNA and protein expression after an acute bout of high-intensity weight training. Annual conference of the Texas Chapter of the American College of Sports Medicine, Fort Worth, TX, February 2001. **Student research award**

Brown M, Taylor L, **Willoughby DS**. Effects of repeated bouts of eccentric exercise on HSP-72 and ubiquitin expression. Annual conference of the American College of Sports Medicine, San Francisco, CA, May 2003.

Nelson M, Bois C, Brown M, **Willoughby DS**. HSP72 expression following an acute bout of high intensity weight training. Annual conference of the American College of Sports Medicine. Baltimore, MD, May 2001.

Nelson M, **Willoughby DS**. HSP72 expression following an acute bout of high intensity weight training. Annual conference of the Texas Chapter of the American College of Sports Medicine. Fort Worth, TX, February 2001. **Student research award**

Nelson M, Encarnacion M, **Willoughby DS**. Effects of creatine monohydrate supplementation and high-intensity weight training on myosin heavy chain isoform mRNA and protein expression. Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, February 2000. **Student research award**

### **Peer-Reviewed Posters as Co-Investigator**

Gepner Y, Hoffman JR, Hoffman MW, Zelicha H, **Willoughby DS**, Feinstein U, Ostfeld I. The effect of two-weeks of inactivated probiotic bacillus coagulans on endocrine, inflammatory and performance responses during intense military training. Cell Symposia Exercise Metabolism Conference, Sitges, Spain, May 2019.

Forrester H, Pacelli C, Pfeiffer M, Gann J, Andre T, Zhou Q, Song JJ, **Willoughby DS**, Leutholtz B, Koh Y. A comparison of flexed vs. relaxed skinfold methodology in college aged males and females. Annual conference of the Texas Chapter of the American College of Sports Medicine, College Station, TX, March 2016.



Gonzalez AM, Hoffman JR, Townsend JR, Jajtner AR, Wells AJ, Beyer KS, **Willoughby DS**, Oliveira LP, Fukuda DH, Fragala MS, Stout JR. Influence of myosin heavy chain protein isoforms on Akt/mTOR signaling and mRNA expression following resistance exercise in trained men. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2015.

Fragala MS, Townsend JF, Jajtner AR, Oliveira LP, **Willoughby DS**, Beyer KS, Gonzalez AM, Wells AJ, Hoffman JR, Stout JR, Fukuda DH. Androgen mediated leukocyte responses to acute resistance exercise. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2015.

Park J, Schwarz N, **Willoughby DS**, Koh Y. Role of high-intensity resistance exercise in vascular inflammation in recreationally trained men. Annual conference of the Texas Chapter of the American College of Sports Medicine, Austin, TX, February 2015.

Moore C, Fahlman A, Moore M, **Willoughby DS**, Kanatous S, Trumble S. Significance of Type IIb muscle fibers in diving mammals. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, Boston, MA, April 2013.

Cooke M, Allison A, Dorsa C, Nix C, Raudales J, Shelmadine B, McPheeters M, La Bounty P, Greenwood M, **Willoughby DS**. Regulators of muscle hypertrophy are unaffected by free leucine supplementation in older individuals. Annual conference on the American College of Sports Medicine, San Francisco, CA, 2012.

Allison A, Dorsa C, Nix C, Raudales J, McPheeters M, **Willoughby DS**, Greenwood M, Cooke M. Effects Of whey protein and casein supplementation on training-induced adaptations in older males. Annual conference of the Society of General Internal Medicine. Orlando, FL, May 2012.

**Willoughby DS**. Regulators of muscle hypertrophy are unaffected by whey protein and casein supplementation in older individuals. Annual conference of the Society of General Internal Medicine. Orlando, FL, May 2012.

Hudson G, M Galbreath, R Chandran, J Wismann, M Serra, J Dove, C Boulton, P LaBounty, M Cooke, C Rasmussen, R Wilson, **Willoughby DS**, M Greenwood, and R Kreider. Effects of a popular fitness and weight loss program in senior-aged women: leptin, ghrelin, and adiponectin levels. Annual conference of the National Strength and Conditioning Association, Las Vegas, NV, 2008.

Kreider R, **Willoughby DS**, Greenwood M, Payne E, Parise G, Tarnopolsky M. Creatine serum supplementation has no effect on muscle ATP or creatine levels. Annual conference of the American Physiological Society's meeting of the Federation of the American Societies of Experimental Biology, San Diego, April 2003.

Greenwood M, Greenwood L, Kreider R, **Willoughby DS**. The effects of a botanical COX-2 inhibitor supplement on knee range of motion following isokinetic performance. Annual conference of the National Athletic Training Association, St Louis, MO, June 2003.

Greenwood L, Greenwood M, Kreider R, **Willoughby DS**. The effects of a botanical COX-2 inhibitor supplement on muscular soreness. Annual conference of the National Athletic Training Association, St Louis, MO, June 2003.

Ingalls C, **Willoughby DS.**, Barnes W, Cline C, Chilek D. Epinephrine and glycogenolysis in isolated skeletal muscle. Annual conference of the American College of Sports Medicine, Dallas, TX, May 1992.

Ingalls C, **Willoughby DS**, Barnes W, Cline C, Chilek D. Epinephrine and glycogenolysis in isolated skeletal muscle. Annual conference of the Texas Chapter of the American College of Sports Medicine, Austin, TX, January 1992, **Graduate Student Research Award.**

**Invited Presentations (International)**

**Willoughby, DS.** Sports supplements and performance. ISSN-Guatemala Sports Nutrition Symposium. Guatemala City, Guatemala, March 2019.

**Willoughby, DS.** Nutrition and body composition for improving lean mass. ISSN-Guatemala Sports Nutrition Symposium. Guatemala City, Guatemala, March 2019.

**Willoughby, DS.** Nutrient timing and dietary manipulation for strength and endurance athletes. ISSN-Guatemala Sports Nutrition Symposium. Guatemala City, Guatemala, March 2019.

**Willoughby, DS.** Muscle damage and nutritional supplementation. ISSN-Sport Nutrition International Conference, Bologna, Italy, November 2018.

**Willoughby, DS.** Testosterone's responsiveness to resistance exercise and "altering supplements": Does it actually impact skeletal muscle strength and hypertrophy? Society of Weight-Training Injury Specialists. Toronto, Canada, October, 2018.

**Willoughby DS.** Nutritional considerations for strength and power athletes. Motion Sports Nutrition Conference, Medellin, Colombia, October 2017.

**Willoughby DS.** Sport supplements for muscle mass and strength. NSCA-Japan Conference, Tokyo, Japan, January 2017.

**Willoughby DS.** Nutritional considerations for strength and power athletes. Society of Weight-Training Injury Specialists. Toronto, Canada, October 2016.

**Willoughby DS.** Sport supplements for muscle mass and strength. ISSN-Ireland Workshop on Sports Performance and Nutrition, Dublin, Ireland, September 2016.

**Willoughby DS.** Advanced nutritional and biochemical applications for muscle hypertrophy and fat loss. Society of Weight-Training Injury Specialists. Toronto, Canada, November 2015.

**Willoughby DS.** Resistance training for maximal skeletal muscle hypertrophy. ISSN-Ireland Workshop on Sports Performance and Nutrition, Dublin, Ireland, September 2014.

**Willoughby DS.** Proteins, peptides and other muscle mass-building supplements. ISSN-Ireland Workshop on Sports Performance and Nutrition, Dublin, Ireland, September 2014.

### **Invited Presentations (National)**

**Willoughby, DS.** Sport nutrition strategies for increasing muscle strength and mass. ISSN-GAINZ Symposium on Sports Nutrition, Dallas, TX January 2019.

**Willoughby, DS.** Sport nutrition strategies for increasing muscle strength and mass. ISSN-NSU Symposium on Sports Nutrition, Nova Southeastern University, Davie, FL October 2018.

**Willoughby, DS.** Using resistance training to counteract age-related decrements in muscle mass and strength. Annual meeting of the International Society of Sports Nutrition, Clearwater Beach, FL, June 2018.

**Willoughby, DS.** Sport supplements for increasing muscle mass and decreasing body fat. Joint meeting of the New England Chapter of the American College of Sports Medicine and the National Strength and Conditioning Association, North Andover, MA, April 2018.

**Willoughby DS.** Role of L-citrulline and glutathione as an ergogenic aid: Effects on muscle strength and mass in response to resistance training. Annual meeting of the International Society of Sports Nutrition, Phoenix, AZ, June 2017.

**Willoughby DS.** Nutritional considerations for strength and power athletes. International Society of Sports Nutrition Regional Workshop, Rutgers University, New Brunswick, NJ, April 2017.

**Willoughby DS.** Effectiveness of testosterone boosting supplements: What does the science say? ISSN-Europa University Workshop on Sports Supplements, Phoenix, AZ, October 2015.

**Willoughby DS.** Protein supplementation for increasing muscle mass with resistance exercise/training. ISSN-Europa University Workshop on Sports Supplements, Phoenix, AZ, October 2015.

**Willoughby DS.** Protein supplementation for increasing muscle mass. ISSN-Europa University Workshop on Sports Supplements, Dallas, TX, June 2015.

**Willoughby DS.** Novel sport supplements for increasing muscle mass. ISSN-Europa University Workshop on Sports Supplements, Phoenix, AZ, October 24, 2014.

**Willoughby DS.** Novel sport supplements for increasing muscle mass. NSCA Personal Trainers Conference. Washington, DC, October 2, 2014.

**Willoughby DS.** Ursolic acid supplementation: A comparison with L-leucine in up-regulating skeletal muscle mTORC1 activity. Annual meeting of the International Society of Sports Nutrition, Clearwater Beach, FL, June 2014.

**Willoughby DS.** Bioactive peptides: A new category of effective supplementation. Europa University Sports Nutrition Seminar. Orlando, FL, April 2014.

**Willoughby DS.** BCAAs, electrolytes and protease enzymes for. Europa University Sports Nutrition Seminar. Orlando, FL, April 2014.

**Willoughby DS.** Eating for smart muscle gains. Strength Summit, Arnold Fitness Exposition, Columbus, OH, March 2014.

**Willoughby DS.** Bioactive peptides: A new category of ergogenic aids. Europa University Sports Nutrition Seminar. Phoenix, AZ, October 2013.

**Willoughby DS.** Bioactive peptides: The future of sports nutritional supplements. Europa University Sports Nutrition Seminar. Dallas, TX, August 2013.

**Willoughby DS.** L-Citrulline: It's role as a nitric oxide donor, circulation enhancer, and promoter of cardiovascular health and muscle protein accretion. Annual meeting of the International Society of Sports Nutrition, Colorado Springs, CO, June 2013.

**Willoughby DS.** Role of nutrient timing and protein and amino acid supplementation in resistance exercise-induced increases in muscle protein synthesis: Implications for resistance training. Midwest Regional Conference of the National Strength and Conditioning Association. Houston, TX, June 2013.

**Willoughby DS.** Resistance training and muscle hypertrophy: Role of nutrition in the myogenic activation of satellite cells. Europa University Sports Nutrition Seminar. Dallas, TX, August 2012.

**Willoughby DS.** Effects of protein and amino acid supplementation on muscle protein synthesis. Strength Summit, Arnold Fitness Exposition, Columbus, OH, March 2012.

**Willoughby DS.** Effects of protein and amino acid supplementation on muscle protein synthesis. Europa University Sports Nutrition Seminar. Dallas, TX, August 2011.

**Willoughby DS.** Nutritional supplements to support increases in muscle mass. Strength Summit, Arnold Fitness Exposition, Columbus, OH, March 2011.

**Willoughby DS.** Role of nutritional supplements on myogenesis and muscle hypertrophy. Annual meeting of the International Society of Sports Nutrition, Clear Water, FL, June 2010.

**Willoughby DS.** Nutraceutical-induced modulation of signaling pathways regulating muscle mass. Strength Summit, Arnold Fitness Exposition, Columbus, OH, March 2010.

**Willoughby DS.** The role of myogenic regulatory factors in myogenesis and muscle hypertrophy: Effects of nutritional supplementation, Annual meeting of the International Society of Sports Nutrition, New Orleans, LA, June 2009.

**Willoughby DS.** Effects of thermogenic nutritional supplements on fat loss. Arnold Fitness Exposition, Columbus, OH, March 2009.

**Willoughby DS.** Dietary protease supplementation attenuates eccentric-exercise induced force production decrements by augmenting leukocyte activity and systemic inflammation. Annual conference of the Transformation Enzyme Company. October 2008.

**Willoughby DS.** Bioactive nutraceutical immuno-modulation of inflammation and exercise-induced muscle damage: Role of proteolytic enzymes. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2008.

**Willoughby DS.** Nutritional interventions that enhance muscle mass. Strength Summit, Arnold Fitness Exposition, Columbus, OH, March 2008.

**Willoughby DS.** Supplements that enhance lean body mass and nutrient timing. Annual conference of the Texas Chapter of the National Strength and Conditioning Association. Texas A&M University, College Station, TX, February 2008.

**Willoughby DS.** Cinnulin PF: Unlocking the mechanisms behind performance enhancement and improvements in metabolic syndrome factors. Annual conference of Supply Side West, Las Vegas, NV, November 2007.

**Willoughby DS.** Nutrigenomics in exercise and sport nutrition: What can we learn from nutrient-gene interactions? Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2007.

**Willoughby DS.** Factors regulating muscle creatine uptake: Applications relevant to sport performance. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2006.

**Willoughby DS.** Optimal protein and amino acid intake to promote muscle hypertrophy. International Society of Sports Nutrition Regional Symposium, Florida Atlantic University, Davie, FL, April 2006.

**Willoughby DS.** Optimal protein and amino acid intake to promote muscle hypertrophy. Arnold Strength Summit Sport Nutrition Symposium, Columbus, OH, March 2006.

**Willoughby DS.** Supplements that enhance lean body mass. International Society of Sports Nutrition Regional Symposium, Baylor University, Waco, TX, December 2005.

**Willoughby DS.** Supplements that enhance lean body mass. International Society of Sports Nutrition Regional Symposium, California State University at Fullerton, Fullerton, CA, November 2005.

**Willoughby DS.** How academic centers view clinical research on dietary supplements. Annual Conference on Nutraceuticals and Functional Foods (World Nutra), Anaheim, CA, October 2005.

**Willoughby DS.** Anabolic steroids and pro-hormone supplements: Illegal/banned performance enhancers. An invited steroid awareness talk for the athletes, coaches, and parents of The Colony High School, The Colony, TX, August 2005.

**Willoughby DS.** Legal performance enhancers: supplements as training tools. Athletes' Performance Institute, Phoenix, AZ, December 2004.

**Willoughby DS.** Myostatin expression in response to immobilization and load-induced contractions. Graduate seminar, Department of Health and Kinesiology, Texas A&M University, November 2004.

**Willoughby DS.** The role of myostatin and the rationale behind myostatin-binding supplements. Annual conference of the International Society of Sports Nutrition, Las Vegas, NV, June 2004.

**Willoughby DS.** Nutrition and sport supplements. Annual conference of the Texas Chapter of the National Strength and Conditioning Association, Denton, TX, May 2004.

**Willoughby DS.** Sport nutrition and supplements. Sports Nutrition Symposium, Bowdoin College, Brunswick, ME. November 2003.

**Willoughby DS.** Incorporating molecular biology into the teaching and research of exercise physiology. Annual conference of the American Society of Exercise Physiologists, Sacramento, CA, April, 2003.

**Willoughby DS.** Sports nutrition and supplementation. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Fort Worth, TX, December 2002.

**Willoughby DS.** Molecular biology and the response to exercise. Annual conference of the Southwest Chapter of the American College of Sports Medicine, Las Vegas, NV, November 2002.

**Willoughby DS.** Sport ergogenic aids. Sports Nutrition Symposium, University of Southern Maine, Portland, ME. June 2002.

**Willoughby DS.** Sport nutrition and supplements. Annual conference of the Texas Chapter of the National Strength and Conditioning Association. Denton, TX, April 2002.

**Willoughby DS.** Exercise and fitness in the elderly. Elder Issues Television Show, Area Agency on Aging of Tarrant County, Fort Worth, TX, September 2001.

**Willoughby DS.** Nutrition and sport supplements. Annual conference of the Texas Chapter of the National Strength and Conditioning Association, College Station, TX, May 2001.

**Willoughby DS.** The possible anti-proteolytic role of HSP-72 in skeletal muscle. Annual conference of the Texas Chapter of the American College of Sports Medicine. Fort Worth, TX, February 2001.

**Willoughby DS.** IL-6 expression after two muscle injury inducing exercise bouts. Presentation for the University of Texas at Arlington's Exercise Science Seminar, November 2000.

**Willoughby DS.** Applying molecular biology into the field of exercise physiology. Annual conference of the American Society of Exercise Physiologists, Albuquerque, NM, September 2000.

**Willoughby DS.** Sport supplements: Implications for athletic trainers. Annual conference of the Southwest Chapter of the National Athletic Training Association, Arlington, TX, July 2000.

**Willoughby DS.** Sport supplements: A scientific perspective. Annual conference of the Texas Chapter of the National Strength and Conditioning Association, College Station, TX, May 2000.

**Willoughby DS.** Physiological factors affecting muscle strength and size as a result of weight training. Annual conference of the Maine Chapter of the National Strength and Conditioning Association, Brunswick, ME, June 1999.

**Willoughby DS.** Strength training for the knee after physical therapy rehabilitation of an ACL reconstruction. Presentation for Orthopedic Associates of Portland, Portland, ME, April 1998.

**Willoughby DS.** Strength training in the elderly: Where to begin and how to progress. Presentation for the Southern Maine Area Agency on Aging, Portland, ME, November 1997.

**Willoughby DS.** The advantages of exercise in the life of diabetics. Annual conference of the Maine Chapter of the American Diabetic Association, Falmouth, ME, April 1997.

**Willoughby DS.** Effects of low- and high-intensity weight training in counteracting sarcopenia and regulating myosin heavy chain gene expression in the elderly: Implications for practitioners. Annual conference of the Maine Chapter of the National Gerontological Nurses Association, Portland ME, April 1997.

**Willoughby DS.** The importance of strength training and nutrition for improving athletic performance. Workshop for North Yarmouth Academy, Yarmouth, ME, November 1996.

**Willoughby DS, Roozen M.** Incorporating the Olympic lifts into your athletic conditioning curriculum. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, November 1996.

**Willoughby DS, Snowden, S.** Preventing athletic injuries in high school athletes through strength training. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, November 1996.

**Willoughby DS.** Over-training: Can it actually cause decrements in athletic performance? Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Dallas, TX, November 1995.

**Willoughby DS.** Incorporating resistance training into the exercise programs of the elderly and Phase 3 cardiac rehab patients. Presentation for the Medical Staff of Hood General Hospital, Granbury TX, April 1994.

**Willoughby DS.** Sports medicine considerations in conditioning the youth athlete: Implications for coaches. Presentation to a coaching clinic for Weatherford College, Weatherford TX, January 1994.

**Willoughby DS.** Optimizing athletic performance: Incorporating variation into your strength and conditioning program. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, December 1993.

**Willoughby DS.** Clenbuterol as a muscle growth promoter: Can it be considered as an ergogenic aid? Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Dallas, TX, December 1993.

**Willoughby DS.** Anaerobic conditioning of athletes: Where does strength training fit in? Annual conference on Innovations in Sports Medicine, University of Texas Medical Branch, Galveston TX, July 1993.



**Willoughby DS.** The importance of weight training and proper nutritional habits in optimizing athletic performance. Presentation for Corpus Christi Athletic Club, Corpus Christi TX, April 1993.

**Willoughby DS.** Prepubescent strength training: Some considerations. Presentation for the medical staff of Texas Children's Hospital, Houston TX, March 1993.

**Willoughby DS.** Ensuring reliability and validity when testing your athletes. Annual conference of the Texas Chapter of the National Strength and Conditioning Association, Texas A&M University, June 1992.

**Willoughby DS.** The use and abuse of anabolic steroids in high school and collegiate athletics. Annual conference of the Texas Association of Health, Physical Education, Recreation, and Dance, Dallas TX, December 1989.

## RESEARCH GRANTS AND CONTRACTS

### External Funding as Principal Investigator

#### *Received*

**Willoughby DS.** (2017). Effects of pyrroloquinolone quinone (PQQ) supplementation on mitochondrial function and aerobic exercise performance in untrained men. Nascent Health Sciences, Inc. **Amount Funded: \$75,000**

**Willoughby DS.** (2015). Effects of 8 weeks of heavy resistance training in conjunction with L-citrulline and glutathione supplementation on body composition, muscle mass and performance, and blood clinical safety markers in resistance-trained males. Kyowa Hakko Bio, Inc. **Amount Funded: \$95,000**

**Willoughby DS.** (2015). The pharmacokinetic profile of the dipeptide creatine-L-leucine compared to creatine monohydrate and L-leucine and its effectiveness at enhancing muscle protein synthesis and the myogenic activation of satellite cells in response to resistance training. Vital Pharmaceuticals, Inc. **Amount Funded: \$35,000**

**Willoughby DS.** (2015). Effectiveness of fish oil in minimizing exercise-induced muscle damage in females during mid-follicular and mid-luteal menstrual phases. MusclePharm, Inc. **Amount Funded: \$12,000**

**Willoughby DS.** (2014). Effects of 8 weeks of heavy resistance training and phosphatidic acid supplementation on body composition and muscle mass and performance in resistance-trained males. Chemi-Nutra, Inc. **Amount Funded: \$30,000**

**Willoughby DS.** (2013). Effects of seven days of L-citrulline and/or glutathione supplementation on blood flow and hemodynamics and the levels of circulating nitric oxide and markers of oxidative stress in response to a single bout of resistance exercise in males. Kyowa Hakko Bio, Inc. **Amount Funded: \$120,000**

**Willoughby DS.** (2012). Effects of ingesting a thermogenic caffeine + green tea supplement for eight weeks on indices of body composition and hemodynamic function in overweight males and females. International Society of Sports Nutrition. **Amount Funded: \$16,000**

**Willoughby DS.** (2010). Effects of 6 weeks of SizeOn supplementation on body composition, muscle strength and mass, markers of muscle hypertrophy, and clinical safety markers in males. Gaspari Nutrition, Inc. **Amount Funded: \$75,000**

**Willoughby DS.** (2009). Effects of 4 weeks of NO-Shotgun and NO-Synthesize supplementation on body composition, muscle strength and mass, markers of satellite cell activation, and clinical safety markers in males. Vital Pharmaceuticals, Inc. **Amount Funded: \$50,000**

**Willoughby DS.** (2009). Effects of 8 weeks of stealth supplementation on body composition, muscle strength and mass, markers of satellite cell activation, and clinical safety markers in males. Vital Pharmaceuticals, Inc. **Amount Funded: \$25,000**

**Willoughby DS.** (2009). Effects of 4 weeks of ubiquinol supplementation in conjunction with endurance exercise training on blood and muscle levels of reduced and oxidized CoQ10 and markers of oxidative stress in middle-aged males. Kaneka Corporation. **Amount Funded: \$65,000**

**Willoughby DS.** (2008). Effects of four weeks of daily Silk soymilk ingestion on the exercise-induced inflammatory and proteolytic responses in serum and skeletal muscle in pre-menopausal females. White Wave Foods. **Amount Funded: \$12,000**

**Willoughby DS.** (2007). Effects of prophylactic protease supplementation on attenuating exercise-induced muscle damage and markers of inflammation and immune function in healthy young males. Transformation Enzyme Company. **Amount Funded: \$67,000**

**Willoughby DS.** (2007). Effects of an experimental peptide on skeletal muscle insulin signaling and AKT/mTOR signal transduction activity when provided immediately prior to heavy resistance exercise. Glanbia Nutritionals. **Amount Funded: \$47,000**

**Willoughby DS.** (2007). Effects of 4 weeks of  $\alpha$ -amino-N-butyrate (AAB) supplementation in conjunction with heavy resistance training and an energy-restricted diet on markers of muscle protein degradation. Integrity Nutraceuticals International. **Amount Funded: \$35,000**

**Willoughby DS.** (2006). Effects of the oral ingestion of an antioxidant supplement on resting and resistance exercise-induced indices of inflammation in serum and skeletal muscle of post-menopausal females. WellGen Nutraceuticals, Inc. **Amount Funded: \$76,000**

**Willoughby DS.** (2006). Effects of ingesting thermogenic supplements while participating in a resistance training program on indices of body composition and metabolic, cardiovascular, muscular, and hemodynamic function in overweight females. Unigen Pharmaceuticals, Inc. **Amount Funded: \$98,000**

**Willoughby DS.** (2006). Effects of a creatine supplement formulation containing cinnamon extract (Cinnulin) on creatine transporter expression, muscle creatine uptake, and whole-body creatine retention in males. **Amount Funded: \$32,000**

**Willoughby DS.** (2004). Effects of eight weeks of Novedex supplementation on serum hormone profiles and serum and urinary clinical safety markers in resistance-trained males. Gaspari Nutrition. **Amount Funded: \$42,000**

**Willoughby DS.** (2004). Effects of Java-Fit coffee on hemodynamic function and energy expenditure at rest and after aerobic and anaerobic exercise in males and females. Javalution Coffee Company. **Amount Funded: \$11,000**

**Willoughby DS.** (2004). Effects of prophylactic doses of a melatonin supplement on serum growth hormone levels and the hypothalamus-pituitary-adrenal axis in young and old males and females. Iovate Health Sciences Research, Inc. **Amount Funded: \$131,000**

**Willoughby DS.** (2004). Effects of heavy resistance training and oral 7-keto DHEA supplementation on molecular and biochemical mechanisms regulating skeletal muscle and adipose tissue lipolysis in trained males. Biotest Laboratoeis. **Amount Funded: \$26,000**

**Willoughby DS.** (2004). Effects of eight weeks of 6-OXO™ supplementation on serum hormone profiles and serum and urinary clinical safety markers in resistance-trained males. Proviant Laboratories. **Amount Funded: \$38,000**

**Willoughby DS.** (2004). Effects of a single dose of the thermogenic supplement Xenadrine-NRG on cardiovascular responses in males and females. Cytodone Technologies, Inc., **Amount Funded: \$5,000**

**Willoughby DS.** (2003). Effects of heavy resistance training and an oral proprietary protein supplement on myosin heavy chain and myogenic regulatory factor expression. STRONG Research, Inc. **Amount Funded: \$10,000**

**Willoughby DS.** (2003). Effects of heavy resistance training and an oral protein+creatine supplement on myosin heavy chain, myogenic regulatory factor, and IGF-1 expression. MetRx USA. **Amount Funded: \$45,000**

**Willoughby DS.** (2003). Effects of heavy resistance training and oral myostatin and cortisol inhibitors on serum myostatin content, muscle mass and function, and body composition, Champion Nutrition, Inc. **Amount Funded: \$5,000**

**Willoughby DS.** (2002). Effects of oral serum creatine supplementation on muscle total creatine and phosphocreatine content. RBK Consultations. **Amount Funded: \$7,500**

**Willoughby DS.** (1998). Effects of high-intensity weight training and creatine monohydrate supplementation on myosin heavy chain isoform and ubiquitin protease gene expression. NutraSense, Inc. **Amount Funded: \$5,000**

**Willoughby, D. S.,** Jacobson, C., & Kozar, M. (1993). Developing a primary care clinic for the indigent in Hood County. Texas Department of Health. **Amount Funded: \$200,000**

***Submitted***

**Willoughby DS.** (2003). Acquisition of a real-time PCR and DNA microarray system for teaching and research in exercise physiology. National Science Foundation. Amount Requested: \$130,000.

**Willoughby DS.,** Mitchell J, Johnson M, Pope M, Rhea D, Shah M, Voss K. (2002). Effects of eight weeks of dietary and exercise intervention on physiological, biomechanical, and psychological function, and risk of cardiovascular disease in individuals with spinal cord injury: a multidisciplinary investigation. Christopher Reeve Paralysis Foundation. Amount Requested: \$141,000.

**Willoughby DS,** Priest J. (2000). Muscle protein synthesis and degradation mechanisms after long-term cycling exercise in the spinal cord injured. The Aircast Foundation, Amount Requested: \$100,000.

**Willoughby DS,** Priest J. (1999). Myosin heavy chain and ubiquitin protease mRNA expression after passive leg cycling in SCI individuals. American Heart Association, Amount Requested: \$200,000.

**Willoughby DS.** (1999). Myosin heavy chain isoform and ubiquitin protease gene expression in the elderly after weight training. American Federation for Aging Research, Amount Requested: \$40,000.

**Willoughby DS.** (1997). Myosin heavy chain isoform mRNA expression in the elderly after weight training, National Institutes of Health: National Institute of Musculoskeletal and Skin Disease (R03), Amount Requested: \$50,000.

**Willoughby DS.** (1996). Effects of weight training on the muscle strength and myosin heavy gene expression of previously-inactive elderly men and women. Maine Space Grant Consortium, Maine Science and Technology Foundation, Amount Requested: \$22,000.

**Willoughby DS,** Gillespie J, Priest J, Simpson S, Giles R. (1993). The effects of Nautilus resistance training on the muscle strength and morphology of elderly men and women. NIRSA Foundation, Nautilus equipment grant. Amount Requested: \$100,000.

**Willoughby DS,** Priest J, Simpson S. (1993). Using Resistance Training to Counteract Inactivity-Induced Muscle Atrophy. National Institutes of Health/National Institute on Aging (R15), Amount Requested: \$75,000.

**Willoughby DS,** Coleman E, O'Neill D, Siconolfi S. (1992). The effects of varying weight training exercises on heart rate, blood lactate, and creatine kinase activity. AAHPERD/NASPE. Amount Requested: \$5,000.

### **Internal Funding**

Willoughby DS. (2014). Effect of pre-exercise nutrition on irisin signaling and metabolic pathway regulation in normal body weight and overweight men. URC Research Award, Baylor University. **Amount Funded: \$4,500**

**Willoughby DS.** (2013). Effect of resistance exercise intensity on the expression of the PGC-1 $\alpha$  isoforms and the anabolic and catabolic signaling mediators, IGF-1 and myostatin, in human skeletal muscle. URC Research Award, Baylor University. **Amount Funded: \$4,500**

**Willoughby, D. S.** (2006). Effects of single bouts of low- and high-intensity resistance exercise on activity of MAP kinase signaling and myosin heavy chain mRNA expression. URC Research Award, Baylor University. **Amount Funded: \$3,000**

**Willoughby, D. S.** (2005). Effects of prophylactic supplementation of carnosine, glutathione, and N-acetyl-cysteine on markers of oxidative stress and skeletal muscle proteolysis and apoptosis after eccentric contraction-induced injury in untrained males. URC Research Award, Baylor University. **Amount Funded: \$3,000**

**Willoughby, D. S.** (2003). The protective effects of estrogen against oxidative stress and exercise-induced muscle injury in females. TCU Research and Creative Activities Fund. **Amount Funded: \$2,500**

**Willoughby, D. S.** (2002). Quantitating biochemical molecules using absorbance spectroscopy. TCU Instructional Development Fund. **Amount Funded: \$3,000**

**Willoughby, D. S.** (2001). Effects of exercise-induced muscle injury on muscle proteolysis: role of HSP-72 and ubiquitin expression. TCU Research and Creative Activities Fund.

**Amount Funded: \$3,500**

**Willoughby, D. S.** (2001). Quantitating biochemical molecules using fluorescence spectroscopy. TCU Instructional Development Fund. **Amount Funded: \$3,000**

**Willoughby, D. S.** (2000). Role of DNA binding proteins and heat shock protein-72 in maintaining muscle mass in the spinal cord injured after passive leg exercise. TCU Research and Creative Activities Fund. **Amount Funded: \$3,450**

**Willoughby, D. S.** (2000). Body composition assessment through hydrostatic weighing. TCU Instructional Development Grant Fund. **Amount Funded: \$2,400**

**Willoughby, D. S.** (1999). Effects of exercise-induced muscle injury on muscle proteolysis and interleukin-6 gene expression. TCU Research and Creative Activities Fund. **Amount Funded: \$2,500**

**Willoughby, D. S.** (1997). Myosin heavy chain isoform mRNA expression in the elderly after weight training, Faculty Senate Research Fund of the University of Southern Maine. **Amount Funded: \$3,000**

**Willoughby, D. S.** (1996). Effects of weight training on the muscle strength and myofibrillar protein content of previously-inactive elderly men and women. Faculty Senate Research Fund of the University of Southern Maine. **Amount Funded: \$3,000**

**Willoughby, D. S.** (1996). Effects of weight training on the muscle strength and myofibrillar protein content of previously-inactive elderly men and women. Payson Fund, College of Nursing, University of Southern Maine. **Amount Funded: \$2,500**

**External Graduate Student Research Funding (as Principal Investigator/Student Mentor)**

Cardiaci T, **Willoughby DS.** (2020). Effects of resistance exercise load on androgen receptor-DNA binding, androgen regulated gene expression, and  $\beta$ -Catenin mediation in human skeletal muscle. American College of Sports Medicine-Texas Chapter Student Research Development Award. **Amount Funded: \$1,000**

Gann J, **Willoughby DS.** (2016). Effects of hypohydration on muscular performance and markers of catabolism in females. National Strength and Conditioning Association Student Research Award. **Amount Funded: \$5,000**

McKinley-Barnard S, **Willoughby DS.** (2015). Effectiveness of fish oil in attenuating eccentric exercise-induced muscle damage in females during mid-follicular and mid-luteal menstrual phases. Muscle Pharm-ISSN Student Research Award. **Amount Funded: \$6,000**

Buford T, **Willoughby DS.** (2008). An investigation of the effects of regular exercise in older males on oxidative stress, skeletal muscle apoptosis, and atrophy-related gene expression in response to muscle insult. National Strength and Conditioning Association Student Research Award. **Amount Funded: \$5,000**

Beavers K, Serra M, **Willoughby DS.** (2008). Effects of four weeks of daily Silk® soymilk ingestion on the exercise-induced inflammatory and proteolytic responses in serum and skeletal muscle in a pre-menopausal female population. Texas Chapter of the American College of Sports Medicine. **Amount Funded: \$1,000**

Buford T, **Willoughby DS.** (2008). Effects of prophylactic protease supplementation on markers of inflammation and muscle damage. Texas Chapter of the American College of Sports Medicine. **Amount Funded: \$1,000**

Wismann J, **Willoughby DS.** (2007). Effects of 28 days of protein and amino acid supplementation and ankle immobilization on gastrocnemius muscle mass and strength and atrophy- and apoptosis-related gene expression in males. Texas Chapter of the American College of Sports Medicine. **Amount Funded: \$1,000**

Campbell B, **Willoughby DS.** (2007). The effects of branched-chain amino acid and leucine ingestion on the ERK1/2 MAP kinase signal transduction pathway in conjunction with an acute bout of heavy resistance exercise. National Strength and Conditioning Association Student Research Award. **Amount Funded: \$1,000**

Taylor L, **Willoughby DS.** (2006). Effects of a single bout of low- and high-intensity resistance exercise on myogenic regulatory factor and MAP kinase expression. Texas Chapter of the American College of Sports Medicine. **Amount Funded: \$1,000**

Harvey T, **Willoughby DS.** (2006). Effects of concentric and eccentric muscle contractions on IL-6 signaling in human skeletal muscle and downstream regulation of HSP-72 gene expression: Is IL-6 signaling involved in exercise-induced cytoprotection? National Strength and Conditioning Association Student Research Award. **Amount Funded: \$5,000**

Kerksick C, **Willoughby DS.** (2006). Effects of prophylactic supplementation of glutathione and n-acetyl-cysteine on markers of oxidative stress and skeletal muscle proteolysis and apoptosis after eccentric contraction-induced injury in untrained males. National Strength and Conditioning Association Student Research Award. **Amount Funded: \$5,000**

Watkins A, **Willoughby DS.** (2004). The thermoprotective effects of HSP-72 in response to exercise in the heat. Gatorade Sport Science Institute. **Amount Funded: \$500.00.**

Lewis M, **Willoughby DS.** (2000). Effects of glycogen levels on serum cortisol and lymphocyte heat shock protein-72 content. Gatorade Sport Science Institute. **Amount Funded: \$500.00**

## PROFESSIONAL CERTIFICATIONS

- ◆ Certified Exercise Physiologist, ASEP, Certificate: #11
- ◆ Certified Nutritionist, AFPA, Certificate: #40087
- ◆ Certified Phlebotomy Technician, NHA, Certificate # H4T7B9T7
- ◆ Certified Strength and Conditioning Specialist, (NSCA), Certificate: #901308
- ◆ Certified Sports Nutritionist, ISSN
- ◆ Physique Competition Judge, Global Bodybuilding Organization

## PROFESSIONAL HONORS AND AWARDS

- ◆ Lifetime Achievement Award, Society of Weight Training Injury Specialists, 2018
- ◆ American Men and Women of Science, 2015
- ◆ Fellow, American College of Nutrition, 2014
- ◆ Nominee, Cornelia Marschall Smith Outstanding Professor Award, Baylor University, 2007
- ◆ Fellow, International Society of Sports Nutrition, 2003
- ◆ Wassenich Award: Outstanding Teaching and Mentoring in the TCU Community, 2003
- ◆ Distinguished Alumni, Department of Health and Physical Education, Tarleton State University, 2002
- ◆ Research Award, College of Health and Human Sciences, Texas Christian University, 2002
- ◆ Preferred Professor, Mortarboard National Honor Society of TCU, 2002, 2000
- ◆ Fellow, American Society of Exercise Physiologists, 2001
- ◆ Fellow, American College of Sports Medicine, 1998
- ◆ Research Award, College of Nursing and Health Professions, University of Southern Maine, 1998, 1996
- ◆ Graduate Student Research Award, Texas Chapter of the American College of Sports Medicine, 1992, 1993

## PROFESSIONAL ACTIVITIES AND SERVICE

### Professional Organizational Duties

- ◆ Scientific Advisory Board, Dymatize Nutrition, Inc., 2017-present
- ◆ Research Committee, National Strength and Conditioning Association, 2014-present
- ◆ Scientific Advisory Board, iSatori Nutrition, Inc., 2013-2015
- ◆ Scientific Advisory Board, ProSupplements, LLC, 2013-2015
- ◆ Board of Directors, International Physique Professionals Association, 2009-present
- ◆ Board of Directors, International Society of Sports Nutrition, 2003-present
- ◆ Scientific Advisory Board, FSI Nutrition, Inc., 2006-2008
- ◆ Scientific Advisory Board, Javalution Coffee Company, 2005-2008



- ◆ President, International Society of Sports Nutrition, 2005-2007
- ◆ Vice President, College Division, TAHPERD, 2002-2003
- ◆ Organizer and Faculty Advisor: Sports Medicine Student Association, University of Southern Maine, 1997-1999
- ◆ President for Men's and Boy's Sport Division: TAHPERD, 1995
- ◆ President-Elect for Men's and Boy's Sport Division: TAHPERD, 1994
- ◆ Secretary for Men's and Boy's Sport Division: TAHPERD, 1993
- ◆ Faculty Advisor and Organizer: Fitness and Human Performance Student Association, University of Houston-Clear Lake, 1992-1993

### **Professional National Affiliations**

- ◆ Society of Weight Training Injury Specialists (SWIS)
- ◆ American College of Nutrition (ACN)
- ◆ American College of Sports Medicine (ACSM)
- ◆ American Physiological Society (APS)
- ◆ Council on Undergraduate Research
- ◆ Federation of the American Societies of Experimental Biology (FASEB)
- ◆ International Society of Nutrigenomics and Nutrigenetics (ISNN)
- ◆ International Society of Sports Nutrition (ISSN)
- ◆ International Physique Professionals Association (IPPA)
- ◆ National Strength and Conditioning Association (NSCA)

### **Professional State Affiliations**

- ◆ Texas Chapter of the American College of Sports Medicine (TACSM)
- ◆ Texas Chapter of the National Strength and Conditioning Association

### **Peer-Reviewed Scientific Journal Editorial Boards**

- ◆ Nutrients, Senior Associate Editor, 2020-present
- ◆ Journal of Strength and Conditioning Research, Senior Associate Editor, 2018-present
- ◆ Journal of Sport Science and Medicine, Associate Editor, Sport Nutrition, Supplements, and Drug section, 2016-present
- ◆ Journal of Nutritional Health and Food Engineering (Editor-in-Chief), 2015-present
- ◆ Nutritional and Food Science International (Editorial Board), 2015-present
- ◆ International Journal of Kinesiology and Sport Science (Editor-in-Chief, Physiology Section), 2013-present
- ◆ Frontiers in Nutrition (Associate Editor, Sports and Exercise Nutrition Section) 2015-present
- ◆ International Journal of Nutritional Sciences (Editorial Board), 2015-present
- ◆ Journal of Nutritional Health and Food Engineering (Editorial Board), 2014-present
- ◆ Journal of Biochemistry and Molecular Biology Research (Editorial Board), 2014-present
- ◆ Food Science and Nutrition (Editorial Board), 2014-present
- ◆ Journal of the International Society of Sports Nutrition (Editorial Board), 2006-present

- ◆ Journal of Sport Science and Medicine (Editorial Board), 2005-present
- ◆ Journal of Strength and Conditioning Research (Editorial Board), 2004-present

## CONSULTING

### **Sport and Nutritional Supplement Company Consulting**

- ◆ Nutrition Consultant, Nutrition 21, Inc., 2016-present: *Assist with produce claim verification, development of a CARSE report for claim substantiation.*
- ◆ Nutrition and Sport Performance Consultant, Vital Pharmaceuticals, Inc., 2009-present: *Assist with formulation of supplements, provide scientific and educational assistance for product development and marketing, conduct independent research studies of finished products.*
- ◆ Nutrition and Exercise Performance Consultant, Transformation Enzyme Corporation, 2008-2014, *provide scientific and educational assistance for product development and marketing.*
- ◆ Nutrition and Sport Performance Consultant, iSatori Sports Nutrition, 2013-2014, *Assist with formulation of supplements, provide scientific and educational assistance for product development and marketing, write “white paper” for various supplements.*
- ◆ Nutrition and Sport Performance Consultant, Ajinomoto/Amino Vital Corporation, 2008, *provide scientific and educational assistance for product development and marketing, conduct independent research studies of finished product.*
- ◆ Nutrition and Sport Performance Consultant, AST Sport Science, 2003-2007, *provide scientific and educational assistance for product development and marketing.*
- ◆ Nutrition and Exercise Performance Consultant, Supplement Coach, 2005-2007, *Assist with formulation of supplements, provide scientific and educational assistance for product development and marketing.*
- ◆ Nutrition and Sport Performance Consultant, Max Muscle, 2005-2007, *provide scientific and educational assistance for product development and marketing.*
- ◆ Nutrition and Sport Performance Consultant, Gaspari Nutrition, Inc., 2006-2007: *Provide scientific and educational assistance for product development and marketing, conduct independent research studies of finished products.*
- ◆ Nutrition Supplement Formulator, FSI Nutrition, Inc., 2005: *Formulated product “Herculin MRF-4” that was carried in GNC and many other nutritional outlets.*

### **Exercise and Sport Performance Consulting**

- ◆ Strength and Conditioning and Nutrition Consultant, University of Mary Hardin-Baylor, Department of Athletics, Belton, TX, 2020-present  
Fort Worth, TX, 1999-2004
- ◆ Strength and Conditioning and Performance Nutrition Consultant, Baylor University, Department of Athletics, Waco, TX, 2018-2020
- ◆ Strength and Conditioning Consultant, Texas Christian University, Department of Athletics, Fort Worth, TX, 1999-2004

- ◆ Strength and Conditioning Consultant, Fort Worth Brahmas CHL Professional Ice Hockey Team, Fort Worth, TX, 2000-2002
- ◆ Sport Physiology and Rehabilitation Consultant, The Sports Medicine Center, Orthopedic Associates of Portland, Portland ME, 1997-1999
- ◆ Strength and Conditioning Consultant, Portland Pirates AHL Professional Ice Hockey Team (NHL-Washington Capitals Hockey Team Affiliate), Portland, ME, 1997-1999
- ◆ Strength and Conditioning Consultant, Portland Sea Dogs AA Professional Baseball Team (MLB-Florida Marlins Baseball Team Affiliate), Portland, ME, 1996-1999
- ◆ Employee and Worksite Wellness Consultant, U.S. Naval Air Station, Brunswick ME, 1996-1999
- ◆ Cardiac and Pulmonary Rehabilitation Consultant, Lifeline Center for Health and Wellness, University of Southern Maine, 1996-1999
- ◆ Cardiac Rehabilitation Consultant, Cardiac Rehabilitation Program, Down East Community Hospital, Machias ME, 1996-1999

## UNIVERSITY SERVICE

### **Baylor University: University Service**

- ◆ Protein supplementation and timing. Presentation for Baylor University Fit Well Expo. February 2019.
- ◆ Graduate Council Member, 2016-present
- ◆ Faculty Student Organization Sponsor, Exercise, Fitness, and Nutrition Club, 2016-present.
- ◆ Faculty Student Organization Sponsor, Baylor Powerlifting Club, 2014-present.
- ◆ Protein supplementation for increasing muscle mass. Presentation for Baylor University Live Well and Learn Well Conference. October 2014
- ◆ Institutional Review Board for Protection of Human Subjects in Research Committee, 2011-present
- ◆ Reviewer, URSA Small Grants Program, Baylor University, 2013, 2014, 2015, 2016
- ◆ Strength and Conditioning Consultant, Baylor Athletics, 2009-present
- ◆ Sport Nutrition Consultant, Baylor Athletics, 2009-present
- ◆ Faculty Committee on Physical Facilities. 2007-2010
- ◆ Health and Fitness Issue for Men. Presentation for Baylor University Fitness Expo. 2009
- ◆ Tips for increasing muscle mass and strength in men. Presentation for Baylor University Live Well and Learn Well Conference. October 2007
- ◆ Advanced weight training: building strength and size. Presentation for Baylor University Fitness Expo. January 2007
- ◆ Effects of resistance exercise on skeletal muscle gene expression. Presentation to Biochemistry Department Seminar, October 2006
- ◆ Effects of resistance exercise on skeletal muscle gene expression. Presentation to Biomedical Studies Seminar Students, April 2006
- ◆ Biochemical adaptations to exercise training. Presentation to Biology Seminar, October 2005

- ◆ Nutritional supplements and exercise. Fitness Fuel Presentation for McLane Student Life Center, March 2005

### **Baylor University Service**

- ◆ Institutional Research Board for the Protection of Human Subjects in Research, 2007-present
- ◆ Faculty Search Committee, Mammalian Physiology Faculty Position, Department of Biology, 2018

### **Baylor University: Departmental Service**

- ◆ Director, KENPH Doctoral Program, 2016-2018
- ◆ Faculty Search Committee, Exercise Physiology Faculty Position, 2019, 2018, 2015, 2004
- ◆ Faculty Search Committee Chair, Exercise Physiology Position, 2013
- ◆ Faculty Search Committee, Department Chair, 2008
- ◆ Faculty Search Committee, Health Sciences Faculty Position, 2008
- ◆ Academic Advisor, Masters' Degree Program in Exercise Physiology, 2004-2005

### **Texas Christian University: University Service**

- ◆ Judge, Boller Award for Senior Research Presentation, TCU Honors Program, 2003, 2001
- ◆ TCU Campus Mentor, 2002-2004
- ◆ Chair, Human Safeguards in Research Committee, 2002-2004
- ◆ Human Safeguards in Research Committee, 2001-2002
- ◆ Student Organizations Committee, 2000-2004
- ◆ Strength and Conditioning Coach/Sport Physiology Consultant, Department of Athletics, 1999-2004
- ◆ University Wellness Committee, 1999-2004
- ◆ Commission for the Future of TCU Task Force, College of Health and Human Sciences Committee, 1999-2000
- ◆ Judge, Outstanding Service Awards, Order of Omega, TCU, 1999

### **Texas Christian University: Departmental Service**

- ◆ Program Director, NSCA Undergraduate Recognition Program, 2003
- ◆ Faculty Search Committee, Athletic Training Program Director Position, 2002
- ◆ Faculty Search Committee, Sport Psychology Position, 2001
- ◆ Faculty Search Committee, Health Education Position, 2001
- ◆ Faculty Search Committee, Health Education Position, 2000
- ◆ Human Subjects Review Committee, 1999-2004

### **University of Southern Maine: University Service**

- ◆ Institutional Review Board for the Use of Human Subjects in Research, 1998-1999

- ◆ Faculty Senate Research Committee, 1996-1998

### **University of Southern Maine: College of Nursing and Health Professions Service**

- ◆ Co-Chair, Peer Review Committee, College of Nursing, 1999
- ◆ Peer Review Committee, College of Nursing, 1998

### **University of Southern Maine: Departmental Service**

- ◆ Faculty Search Committee, Exercise Physiology/Athletic Training, 1998
- ◆ Faculty Search Committee, Athletic Training Position, 1998
- ◆ Faculty Search Committee, Department Chair of Sports Medicine, 1997

### **Community Service**

- ◆ Fitness and Nutrition Contributor, Hewitt Life Magazine, 2013-2014
- ◆ Science Fair Judge, Midway Middle School, Hewitt, TX, 2011-2012
- ◆ Softball Coach, Midway Little League, 2008-2010
- ◆ Soccer Coach, Heart of Texas Youth Soccer, 2005-2007
- ◆ Exercise Science Advisory Board, Tarrant County College, Fort Worth, TX, 2002-2004
- ◆ Board of Directors, Benbrook Community Center YMCA, Benbrook, TX, 2002-2004
- ◆ Parks and Recreation Board, City of Benbrook, TX, 2002-2004
- ◆ Sports Nutrition Seminar Series, Benbrook Community Center YMCA, 2002-2004
- ◆ Fitness Consultant, Benbrook Community Center YMCA, 2002-2004

### **Church Involvement**

- ◆ Antioch Community Church, Waco, TX

### **Personal Hobbies and Activities**

- ◆ Exercise and Fitness Trainer
- ◆ Personal Fitness Training and Nutritional Consultant
- ◆ Strength and Conditioning Coach
- ◆ Masters' Level Competitive Bodybuilder