The 18th Annual ISSN Conference and Expo

issn

St. Petersburg FL

June 10-12, 2021

international society of sports nutrition™

The ISSN-Why Go Anywhere Else?!™

Hilton St. Petersburg Bayfront, 333 1st Street South, St. Petersburg FL 33701

June 10 – 12, 2021

EARN your CEUs too! NASM 13 CEUs, CDR 13, NSCA 1.3, ISSN 13, ACSM 6 CECs

The OUTRIGHT Bar is the Official Nutrition Bar of ISSN-St. Petersburg

Registration

Thursday, June 10: 12noon - 4:00PM: Registration opens

Friday, June 11: 7:00AM - 3:00PM - Registration opens

Friday, June 11: 5:00pm-6:00pm – **Free Drinks, Hors D'oeuvres, and Poster Presentations in the St. Petersburg Ballroom**

Saturday, June 12: 8:00AM – 12noon: Registration opens

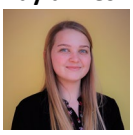
Day 1: June 10	Room: The Grand Bay Ballroom
	Welcome to the 18th Annual Meeting **Moderator: Chad Kerksick PhD FISSN**
1:00pm-1:30pm	A registered dietitian's top pieces of advice for RDs and sport nutritionists **Erik Bustillo MS RD CISSN**
1:30pm-2:00pm	Nutrient timing: more than just macros **Patrick Harty PhD(c)**
2:30pm-3:00pm	Energy status of collegiate athletes: what they don't know might be hurting them **Andrew Jagim PhD CISSN**
15 min break	
3:15pm-3:45pm	Diet refeeds and diet breaks **Guillermo Escalante DSc MBA CISSN**
3:45pm-4:15pm	Gut health: how are athletes different and what role can probiotics play in performance and recovery **Ralf Jager PhD FISSN**
4:15pm-4:45pm	Viewing sports performance through the lens of evolutionary biology: winner-loser effects and why only runners get "high" **Omar Tonsi Eldakar PhD**
	Have a great evening ☺

Day 2: June 11 Room: The Grand Bay Ballroom	**Original Investigations Presented by the PI or Co-PI** **Note: Friday's sessions are dedicated to scientists that do the critical work of conducting *original investigations*. They will be sharing their own data. Some of which you will see for the first time.**
Morning Sessions	**Moderator: Lacey Gould CISSN**
9:00am-9:30am	Body composition assessment: lack of standardization can wreak havoc **Grant Tinsley PhD CISSN**
9:30am-10:00am	Effects of NSAIDS on muscle and bone: from cells to soldiers **Brandon Roberts PhD**
10:00am-10:30am	High-intensity interval training and essential amino acid supplementation **Katie Hirsch PhD CISSN**
30 min break	
Morning Sessions cont.	**Moderator: Brent Uken MS CISSN**
11:00am-11:30am	Immunological approach to reduce URTI symptoms in high intensity training: the function of paraprobiotics **Shintaro Ichikawa PhD - Sponsored by KYOWA**
11:30am-12:00pm	The acute effects of energy drink formulas on metabolism, autonomic response, and excess post-exercise oxygen consumption **Nicolas Clark PhD(c)**
Lunch 12:00pm-2:00pm	**Box Lunches available to attendees for free** 
Lunch and Learn for Students (open to anyone) 12:00-12:45pm	**Attention STUDENTS!** **Grab a box lunch and learn from the best! This is open to anyone.** Graduate School and Post-Doctoral Fellowships: Considerations and Goals **Arny Ferrando PhD FISSN, Brandon Roberts PhD, Shawn Arent PhD FISSN** Moderator: Brent Uken MS CISSN *This is open to anyone but is especially for undergraduate and graduate students interested in pursuing a graduate degree or post-doctoral fellowship in the field of Exercise and Sport Science*
Afternoon Sessions	**Moderator: Hannah E. Cabre MS RDN**
2:00pm-2:30pm	Fuel with fat, thrive on ketones: effects of a well-formulated ketogenic diet on body composition, mood, and satiety in women **Catherine Saenz PhD RD**
2:30pm-3:00pm	Workload and neurological performance in D1 anaerobic athletes **Gabriel Sanders PhD CISSN**
3:00pm-3:30pm	Rapid fat loss – How fast is too fast? **Bill Campbell PhD FISSN and Alexander Brooks**
15 min break	
3:45pm-4:45pm	**Roger Harris Honorary Keynote Lecture** The sports supplements revolution – through my lens **Jeff Stout PhD FISSN** **Moderator:** Trisha VanDusseldorp PhD CISSN **Sponsored by the ISSN**
5:00pm-6:00pm **(Happy Hour – Free Drinks!)**	**Happy Hour and Poster Presentations – presenting authors please be at your poster.** **Go to the *St. Petersburg Ballroom* for free drinks and hors d'oeuvres.**

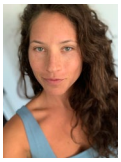
Day 3: June 12	Basic and Applied Science Room: The Grand Bay Ballroom
Morning Sessions	**Moderator: Veronica Mekhail CISSN**
8:00am-8:30am	Carbohydrate recommendations for training **John Eric Smith PhD**
8:30am-9:00am	Plant-based proteins **Chad Kerksick PhD FISSN**
9:00am-9:30am	The nuance of skeletal muscle hypertrophy **Michael Roberts PhD**
30 min break	
Morning Sessions	**Moderator: Cassandra Evans CISSN**
10:00am-10:30am	The cost of greatness: the fine line between fueling to win and disordered eating **Melanie Boehmer MS RD CISSN**
10:30am-11:00am	Is the clock your greatest ally? An evaluation of the current intermittent fasting literature **Matthew Stratton PhD(c) CISSN**
11:00-11:30am	Essential amino acids and protein synthesis: insights into maximizing anabolism **David Church PhD**
Lunch on your own 11:30am-1:00pm	
1:00pm-1:30pm	**ISSN's DATA BLITZ – Science at the Speed of Light** You have 60 seconds to present **original unpublished data**. **Moderator: Douglas Kalman PhD RD FISSN** **Judges: Tim Ziegenfuss PhD FISSN, Lia Jiannine PhD, Darryn Willoughby PhD FISSN**
1:30pm-2:00pm	**Announcements and Awards** Master of Ceremonies: Douglas Kalman PhD RD FISSN, with Trisha VanDusseldorp PhD CISSN, and Rick Kreider PhD FISSN (with a JISSN update) Winners of the Data Blitz and Posters will be announced!
2:00pm-2:50pm	**President's Lecture** Protein homeostasis in the stress state **Arny Ferrando PhD FISSN** **Moderated by: Trisha VanDusseldorp PhD** **Sponsored by the ISSN**
	Mike Greenwood Memorial – Moderator Rick Kreider PhD **Brief Communications – Original Investigations only - 10 minute oral presentation - 5 min of Q & A**
3:00pm-3:15pm	Betaine supplementation on fluid balance and thermoregulation in the heat **Brandon Willingham PhD RD LD**
3:15pm-3:30pm	Creatine and women **Kayla Alesi MS**
3:30pm-3:45pm	High intensity interval training vs. a high fat meal as tests of metabolic flexibility **Alyssa Olenick MS CISSN**
15 min break	**We're at the bottom of the 9th inning. Bottom of the 7th if you prefer softball**
4:00pm-4:15pm	Does coffee consumption acutely hamper heart rate variability in habituated university students **Hayley Maher**

4:15pm-4:30pm	Energy drinks: all brain, no brawn? **Cassandra Evans MS CISSN**
4:30pm-4:45pm	Collagen peptides improve measures of physical function and pain in middle-aged active adults **Shiloah Kviatkovsky PhD**
4:45pm - Closing Remarks	**Trisha VanDusseldorp PhD CISSN, Chad Kerksick PhD FISSN, and Erik Bustillo MS RD CISSN**

The 19th Annual ISSN Conference will be held on Fort Lauderdale Beach, Florida at the Westin Fort Lauderdale Beach Resort, June 16-18, 2022. Be there. Aloha.

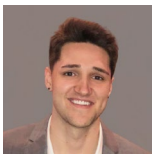


Kayla Alesi MS earned her Master's Degree at Kennesaw State University. Her thesis examined the effects of a creatine monohydrate loading period in college-aged women on body composition and muscular strength and fatigue, while controlling for menstrual cycle. **Title:** Creatine and women. **Description:** While creatine is a very commonly explored supplement, most of the current research wherein there are benefits, are completed in male subjects. The literature on creatine supplementation and women is currently lacking, especially in a pre-menopausal population. This talk will review the current literature in women, research from my thesis, and future research opportunities in the area.

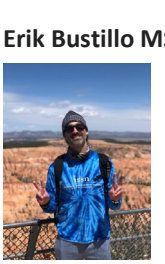


Melanie Boehmer MS RD CDN CISSN has a master's in nutrition, is a registered dietitian, and certified sports nutritionist. Her goal is to help others increase their nutritional IQ, fall in love with food, optimize performance, and work towards sustainable lifestyle changes that will dramatically enhance their quality of life. **Title:** The Cost of Greatness: The Fine Line Between Fueling to Win and Disordered Eating. **Description:** In the athletic population, body weight and body composition are crucial performance variables. In order to gain a competitive advantage, many athletes use extreme methods to rapidly reduce and/or maintain a low body mass. Because these athletes are often deeply influenced by our cultural ideals, which place a heavy emphasis on ultra-thinness, they're high-risk for body image issues, problematic eating habits, and eating disorders. In order to truly address the issue, we need to recognize the signs and symptoms of eating disorders. We also need to have a candid conversation about athletes who engage in disordered eating but fall short of a clinically diagnosable disorder. Sub-clinical disordered eaters are still at serious risk for long-term health consequences.
Coaches and athletic trainers play a pivotal role in the lives of their athletes and are ideally positioned to identify disordered eating. This presentation aims to address coaches and athletic support staff, providing education, and resources to confidently address these situations.

Alex Brooks recently graduated from the University of South Florida with a M.S in exercise science. During his time there he served as a graduate teaching associate instructing courses in nutrition, exercise physiology, and exercise testing and prescription. In addition to this, he acted as the nutrition coordinator for the Performance and Physique Enhancement Laboratory and coordinated the completion of the Rapid Fat Loss study, the topic of today's talk. He has published numerous abstracts and currently has several manuscripts in preparation all pertaining to physique enhancement and sports nutrition. Alex is a Certified Strength & Conditioning Specialist through the National Strength & Conditioning Association and currently serves as a content writer for Built With Science, an evidence-based online training platform**. Title:** Rapid fat loss – how fast is too fast? **Description:** Many individuals are interested in losing body fat rapidly. However, crash diets and quick approaches to losing weight in the short term invite negative physiological consequences such as suppressed metabolisms and loss of muscle mass. Our presentation will highlight research from our laboratory in which we investigated rapid fat loss in fit, resistance trained individuals. Our talk will focus on the limits of rapid fat loss programs and the extent to which they adversely affect muscle mass and metabolic rates in a resistance-trained populations consuming adequate protein.

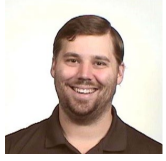


Erik Bustillo MS RD CISSN CSC CPT practices as a Registered Dietitian, Fitness Trainer, and Health Coach and is the current Co-VP of the ISSN. He attended Florida International University and earned his B.S. in Dietetics & Nutrition and his M.S. in Applied Exercise Science with a concentration in Sports Nutrition from Concordia University Chicago. Additionally, Erik is a Certified Sports Nutritionist (CISSN) a Certified Strength Coach (NCSF-CSC), and a Certified Personal Trainer (NSCA). Erik has experience in research and working with professional & collegiate athletes, weekend warriors, avid CrossFitters, and in an outpatient setting helping individuals with weight loss/gain as desired outcomes using motivational interviewing and seeing medical nutrition therapy patients. **Title:** A Registered Dietitians Top Pieces of Advice for RDs & Sports Nutritionists Including Diversity **Description:** This presentation will discuss evidence-based practices for registered dietitians and sports nutritionists to use with athletes/clients/patients. Individuality will be emphasized throughout the presentation and there will also be a review of energy systems. Science backed suggestions for nutrient timing will be discussed. Specific supplementation strategies for creatine, beta-alanine, and other supplements will be covered. Macronutrient and hydration suggestions for different types of athletes will also be reviewed. Importance of building rapport will be discussed along with understanding of probiotics and the science behind diet & body composition will be reviewed. This will be a refresher course for some and for others more of an introduction to the world of sports nutrition. Diversity and inclusion will also be discussed as this is a growing topic in the field of nutrition and Erik has years of experience working with diverse populations. @erikbustillo



Bill Campbell PhD FISSN is a Professor of Exercise Science at the University of South Florida. He received his Ph.D. in Exercise, Nutrition, and Preventive Health at Baylor University. As a researcher and author, Dr. Campbell has published 3 textbooks and nearly 200 scientific papers and abstracts (in academic journals) related to physique enhancement and sports nutrition. In addition, he is a litigation consultant/expert witness related to dietary supplementation. Dr. Campbell is the Director of the Performance & Physique Enhancement Laboratory at the University of South Florida. His research is focused on helping people optimize their physiques within a maintainable lifestyle. Dr. Campbell is a fellow and past President of the International Society of Sports Nutrition and a Certified Strength & Conditioning Specialist through the National Strength & Conditioning Association. You can follow Dr. Campbell's work on Instagram at @billcampbellphd **Title:** Rapid Fat Loss – How Fast is too Fast? **Description:** Many individuals are interested in losing body fat rapidly. However, crash diets and quick approaches to losing weight in the short term invite negative physiological consequences such as suppressed metabolism and loss of muscle mass. Our presentation will highlight research from our laboratory in which we investigated rapid fat loss in fit, resistance trained individuals. Our talk will focus on the limits of rapid fat loss programs and the extent to which they adversely affect muscle mass and metabolic rates in a resistance-trained population consuming adequate protein.

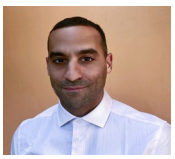
David Church PhD is a post-doctoral fellow at the University of Arkansas for Medical Sciences under the mentorship of Dr. Arny Ferrando and Dr. Robert Wolfe. Dr. Church obtained his Ph.D. from the University of Central Florida. His research interest includes protein kinetics, military physiology, aging, nutrition, and exercise. **Title:** Essential amino acids and protein synthesis: insights on maximizing anabolism **Description**: Essential amino acids (EAA) are the primary stimulus for muscle protein anabolism. Consolidation of work from our laboratory, and others, indicates a clear relationship between the peripheral increase in EAA concentrations and their anabolic effect on protein turnover. In muscle, a rapid increase in peripheral EAA produces a greater increase in the rate of muscle protein synthesis. At



the whole-body level, the EAA-stimulated increase in protein synthesis, as well as the amelioration of protein breakdown, are the primary mechanisms of anabolism. Most importantly, the matrix of EAA delivery dictates the peripheral rate of increase in EAA concentrations, and subsequent anabolic effects. For example, free-form EAA ingestion results in the greatest peripheral increase in EAA and a robust increase in MPS. This is followed by a combination of free-form EAA and intact protein (whey), intact protein (whey) alone, a protein food source (beef alone), and finally, a mixed meal. While anabolism at the whole-body level is possible with any protein matrix, muscle requires a robust presence of peripheral EAA for optimal response. Thus, optimization of EAA/protein intake is a prime determinant of muscle and whole-body protein turnover, particularly when performance enhancement is sought. Conflict of Interest, Sponsors, etc.: My current salary and research is supported by a Department of Defense grant, NIH, and The Foundation for Meat and Poultry Research and Education.

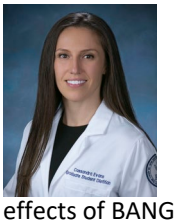
Nicolas Clark is a Ph.D. candidate of Exercise Physiology at the University of Central Florida. The overarching goal of his research is to advance the implementation of noninvasive prognostic tools that can be used to demarcate exercise intensity domains. His recent projects examined the acute effects of energy drink consumption on the autonomic nervous system and fat oxidation behavior. **Title:** The acute effects of energy drink consumption on metabolism and autonomic response at rest and during exercise. **Description:** The idea that energy drinks (ED) can influence metabolism, autonomic response, and oxygen consumption is primarily due to its active component, caffeine. However, the amount of caffeine in these beverages may moderate these physiological responses. The purpose of this talk will be to present data from three studies performed in the Institute of Exercise Physiology and Rehabilitation Science Labs aimed to examine the acute effects of commercially available energy drink formulas on the metabolism at rest and during exercise. Our results show that acute ingestion of an ED containing 140 mg or 100 mg of caffeine significantly increased resting metabolic rate, while only ED containing 140 mg of caffeine increased resting fat oxidation. For the dosages tested, no significant differences were shown for maximal fat oxidation during exercise. In another one of our studies, ED was shown to influence cardiac responses related to the heart's autonomic function. We showed that ED consumption affects heart rate variability during low-intensity exercise and may differently impact sex. Our most recent study showed that ingesting an ED containing 140 mg of caffeine two hours before completing an incremental exercise test to volitional fatigue (i.e., graded exercise test) did not affect time to exhaustion but increased the short term post-exercise $\dot{V}O_2$ responses. Interestingly, ingestion of an energy drink containing 100 mg of caffeine or less may be considered acceptable within two hours before completing an incremental exercise test to exhaustion.

Omar Eldakar PhD is an evolutionary biologist interested in the evolution of cooperation and conflict in social organisms. Dr. Eldakar also maintains broad interests in adaptive behavior and physiology. Dr Eldakar earned his PhD in evolutionary biology from Binghamton University in New York, and then continued to a postdoctoral fellowship at the Center for Insect Science at the University of Arizona. He is currently an associate professor in the Department of Biological Sciences at Nova Southeastern University. **Title:** Viewing sports performance through the lens of evolutionary biology: "winner-loser" effects and why only runners get "high." **Description:** Across the animal kingdom it has been observed that outcomes of conflicts are influenced by past experiences, whereby previous winners are likely to keep winning and losers are likely to continue losing. These so-called "winner and loser effects" are hypothesized to result from factors such as information acquisition and endocrine responses following the initial bouts. This talk applies the understanding of this phenomenon to a novel domain: patterns of winning and losing in baseball and softball double headers. Findings suggest that winner and loser effects contribute to the outcomes of sporting contests that has implications for sports scheduling and sports psychology.



Guillermo Escalante DSc MBA ATC CSCS*D CISSN. Guillermo holds a Doctor of Science in Athletic Training, an MBA with concentrations in marketing and healthcare management, a BS in Athletic Training with a Biology minor, and is a certified athletic trainer, strength and conditioning specialist, and sports nutritionist. He is currently an Associate Professor of Kinesiology at California State University, San Bernardino where he teaches courses in exercise science/kinesiology such as Sports Nutrition, Prevention & Care of Athletic Injuries, Exercise Prescription, Health & Fitness Business Management, and more. He performs research in the areas of sports medicine, sports nutrition, human performance, and physique enhancement where his work has been published in peer-reviewed publications and/or presented at various national and international conferences. In addition to his peer-reviewed work, he has published over 50 articles in internationally distributed fitness magazines and websites such as Bodybuilding.com, Muscle & Fitness, and Muscular Development. He serves as an Associate Editor for the Journal of the International Society of Sports Nutrition, a committee member of the Nutrition, Metabolism, & Body Composition Special Interest Group through the National Strength and Conditioning Association, and the Student Research Papers coordinator for the Western Society of Kinesiology & Wellness. Guillermo also serves as a consultant to several businesses in the areas of fitness, sports medicine, exercise, and sports nutrition. **Title:** Diet Refeeds and

Diet Breaks. **Description:** Diet refeeds and diet breaks are two types of intermittent energy restriction strategies that are used among obese and physically active individuals to reduce fat mass. This presentation will discuss the theoretical physiological mechanisms as to how these diet tools work and how they compare to a continuous energy restriction approach. Research on the effectiveness of diet refeeds and diet breaks in physically active and obese populations will be presented and compared. Finally, the pros and cons of using these diet tools will be discussed along with practical applications as to if and how these strategies should be implemented.



Cassandra Evans MS RD CISSN is a doctoral student at Rocky Mountain University. She studied sports nutrition and completed an internship with University of Miami's Sports Nutrition team and Nova Southeastern University's sports performance team. She holds a bachelor of science in Exercise and Sports Science, a Master's of Science in Dietetics and Sports Nutrition and received her CISSN in 2018. Several of her peer-reviewed manuscripts include The Effects of an Energy Drink on Psychomotor Vigilance in Trained Individuals and Nutritional interventions and supplementation for rheumatoid arthritis patients: A systematic review for clinical application. **Title:** Energy Drinks: All Brain, No Brawn? **Description**: The effects of energy drink consumption will be explored using recent studies. Studies will include the effects of BANG energy drinks on an individual's ability to respond to a visual stimulus and muscular endurance. Additionally, the effects of acute consumption of Redline energy drink on physical performance, reaction time and cognition will be discussed. She is currently collaborating with Jose Antonio at Nova Southeastern University on sports nutrition and supplements research.

Arny Ferrando PhD FISSN is a Professor at the Center for Translational Research in Aging and Longevity at the University of Arkansas for Medical Sciences. He has studied human nutrition, metabolism, and physiology for a score and more. In particular, he has been involved in metabolic and outcome studies in aging populations for more than two decades. These studies have addressed metabolic responses to both nutritional and pharmacological interventions. In addition, many studies have investigated these modalities on strength and functional outcome measures. Inherent in these studies was the development of expertise in the techniques to include calculations, validation and interpretation. In his past life, Dr. Ferrando served in the US Army (active duty: aviation, pilot) and is a Fellow of the International Society of Sports Nutrition. **Title:** Protein homeostasis in the stress state. **Description:** This presentation will describe the metabolic alterations associated with increasing stress states and the accompanying anabolic resistance. Focus will be given to hormonal and amino acid metabolism as it relates to muscle and whole-body protein metabolism. Emphasis is given to the various roles of muscle and body protein in the response to physiological stress. Parallels will be drawn to athletic performance/training, in particular the effects of hypocaloric intake and skeletal muscle requirements to maintain anabolism.

Shiloah Kviatkovsky is a doctoral student in the exercise physiology Ph.D. program working under Dr. Ormsbee at the Institute of Sport Sciences at Florida State University. Shiloah received her baccalaureate in kinesiology, as well as her masters in exercise physiology and nutrition, and completed her dietetics program at San Diego State University. After graduate school, Shiloah went on to work for the U.S. Navy as a research physiologist and nutritionist in a biobehavioral sciences lab, focusing on human performance and War Fighter readiness. She also worked as a research coordinator on a large-scale study examining the effects of blast exposure and it physiological and psychological effects in U.S. Navy SEALS. Her interests are body composition and performance, specifically in endurance sports and environmental extremes. **Title:** Collagen peptides improve measures of physical function and pain in middle-aged active adults. **Description:** Shiloah will present original data on lifelong exercisers supplemented with collagen peptides (Placebo, 10g, and 20g) over the course of 6 months in a double-blind, randomized control trial to assess the impact of collagen supplementation on activities of daily living and pain.

Patrick S. Harty is a doctoral candidate studying under the direction of Dr. Grant Tinsley at Texas Tech University. Born and raised in St. Louis, Missouri, Patrick graduated with a B.S. in Exercise Science from Lindenwood University and later earned a M.S. in Human Performance from the same institution. Patrick completed his master's thesis with the guidance of Dr. Chad Kerksick, examining the effects of pre-exercise caffeine timing strategies on strength, power, and muscular endurance in resistance-trained participants. He also competed as part of the Lindenwood University Olympic weightlifting team during his undergraduate years, training under coach Ma Jianping, a 1984 Olympic competitor. **Title:** Nutrient timing: more than just macros. **Description:** Nutrient timing involves the purposeful consumption of foods, beverages, and supplements at specific times throughout the day to facilitate performance, recovery, and adaptation. To date, most research in this area has centered on carbohydrate and protein timing strategies. However,

an emerging body of literature has provided insight into the efficacy of timing strategies for micronutrients and ergogenic aids. This presentation will examine selected supplement timing strategies that may have merit for athletes and practitioners.

Katie Hirsch PhD CISSN EP-C is a Post Doctoral Fellow in the Center for Translational Research in Aging & Longevity at the University of Arkansas for Medical Sciences. Working with Drs. Bob Wolfe and Arny Ferrando, she conducts research in the area of muscle and protein metabolism in clinical and tactical populations. Katie completed her PhD in Human Movement Science at the University of North Carolina at Chapel Hill where her research focused on nutrition and exercise for the improvement of body composition and metabolic health. Her dissertation focused on the metabolic effects of high-intensity interval training and essential amino acid supplementation. Katie completed her MA in Exercise Physiology at the University of North Carolina at Chapel Hill and her BS in Exercise Science at Truman State University in Kirksville, Missouri. Katie is an ACSM Certified Exercise Physiologist (EP-C) and an ISSN Certified Sports Nutritionist. **Title:** High-Intensity Interval Training and Essential Amino Acid Supplementation. **Description:** High-intensity interval training (HIIT) is an effective and efficient way to increase cardiorespiratory fitness and induce metabolic adaptation in athletes and clinical populations. When combined with nutritional interventions, energy metabolism, exercise performance, and body composition outcomes with HIIT can be further improved. This presentation will highlight recent evidence regarding benefits of essential amino acid supplementation on physiological adaptations to HIIT. Topics will include: metabolic and muscular adaptation, ergogenic effects, nutrient timing strategies, and sex-based considerations.

Dr. Shintaro Ichikawa is the Director of Technical Affairs at Kyowa Hakko USA, leading the business development of Lactococcus lactis strain plasma (LC-Plasma), in the United States. Dr. Ichikawa led the product launch of LC-Plasma in Japan previously. Dr. Ichikawa received his doctorate from the University of Tokyo, Department of Applied Biochemistry. **Title:** Immunological approach to reduce URTI symptoms in high intensity training: the function of paraprobiotics. **Description**: It is well known that prolonged high intensity exercise decreases immune function and increases the risk of upper respiratory tract infections (URTI). It is a serious problem for athletes because not only are URTIs unpleasant but they will also reduce training efficiency. Newly found paraprobiotics, Lactococcus lactis strain Plasma (LC-Plasma), is a food ingredient to activate plasmacytoid dendritic cell (pDC), a key leader of immune system. RCT study of LC-Plasma have shown that oral intake of LC- Plasma activates pDC and reduce URTI symptoms. In this talk, we will introduce novel approach to enhance your immune system to improve the experience of continuous high intensity training by LC-Plasma.

Ralf Jäger PhD FISSN is an inventor, award-winning speaker and leading expert in sports nutrition and probiotics. Dr. Jäger has authored numerous scientific papers on sports nutrition and brain, joint, heart and gut health for both scientific journals and the mainstream media. He is a post-doctoral scholar in bio-organic chemistry at the California Institute of Technology and has a PhD in organic chemistry from the University of Bonn, Germany. Dr. Jäger is a certified sports nutritionist (CISSN), a fellow of the ISSN and associate editor of the leading peer-reviewed scientific sports nutrition journal JISSN. Dr. Jäger is a member of the American Gastroenterological Association (AGA). **Title:** Gut health: how are athletes different and what role can probiotics play in performance and recovery. **Description:** Despite the existence of shared, core mechanisms for probiotic function, many health benefits of probiotics are strain-dependent and dose-dependent. Certain probiotic strains have been linked to maintain immune and gastrointestinal health compromised due to exercise and physical activity. The gut microbiota of athletes is different due to exercise and common dietary habits including protein intake. This presentation will examine what pro-, pre- parapro- or synbiotics are; if microbes can improve performance or recovery; do elite athletes have unique probiotics and what are the clinically validated meaningful benefits for athletes.

Andrew Jagim PhD, CSCS*D CISSN is currently the Director of Sport Medicine Research for the Mayo Clinic Health System in La Crosse, Wisconsin and an Associate Professor of Family Medicine. Dr. Jagim earned his Master's degree in Human Performance at the University of Wisconsin – La Crosse and his doctoral degree in Kinesiology with an emphasis in Exercise Physiology at Texas A&M University, working in the Exercise and Sport Nutrition Lab. His primary research area focuses on the nutritional requirements, knowledge and intake of athletes and the ensuing relationships between performance and health. Dr. Jagim also studies the physiological demands of various sports and how they pertain to recovery status, performance and injuries. He also has a focused interest on the safety and efficacy of dietary supplements. This work has led to over 70 publications in peer reviewed journals, 20 presentations at regional or national conference events and over 100 published abstracts. Dr. Jagim is also a certified strength & conditioning specialist with distinction through the National Strength & Conditioning Association and a certified sports nutritionist through the International Society of

Sports Nutrition. In addition to his time spent with research, Dr. Jagim has worked as a personal trainer and a sports nutrition consultant for a variety populations and athletes. He currently sees patients looking for guidance regarding sports nutrition and training strategies in the Sports Medicine Department for Mayo Clinic Health System in La Crosse, WI. **Title:** Energy status of collegiate athletes: what they don't know might be hurting them. **Description:** Dr. Jagim will summarize the current state of the literature regarding the energy status of athletes, with a focus on low energy availability and Relative Energy Deficiency in Sport. Secondly, Dr. Jagim will discuss how sport nutrition knowledge, or a lack thereof, is likely a key contributor to the dietary insufficiencies commonly seen among college athletes. Common barriers and practical applications for next steps will also be discussed.

Chad M. Kerksick PhD FISSN FNSCA FACSM is an Assistant Dean of Research & Innovation in the School of Science, Technology, and Health and Director of the Exercise and Performance Nutrition Laboratory (www.lindenwood.edu/epnl) at Lindenwood University. His primary research interests include topics related to exercise and nutrition including and in particular those that involve physiologic, biochemical, cellular and molecular adaptations relative to various forms of exercise and nutrition interventions. His ongoing research continues to examine questions that focus on the accretion of skeletal muscle, nutritional supplementation, weight loss and body composition changes, and the promotion of health and recovery in healthy, active, and clinical populations. **Title:** Plant-based Proteins. **Description:** The importance of added protein to support exercise performance and to heighten adaptations to regular exercise is well established. While many sources of protein are available, conventional means of assessing protein quality consistently rank animal proteins higher than plant sources, which led to plant proteins being deemed as inferior to animal protein. In the past several years, a resurgence in the interest in plant proteins has occurred with many published studies investigating the ability of various plant sources to stimulate muscle protein synthesis and promote exercise adaptations. This presentation will summarize the available literature surrounding plant-based proteins and provide practical recommendation on how and when plant proteins should be considered.

Hayley Maher is an undergrad at the University of Mount Union in the Department of Exercise, Sport and Nutrition Sciences currently under the tutelage of Dr. Lonnie Lowery. **Title:** Does Coffee Consumption Acutely Hamper Heart Rate Variability in Habituated University Students? **Description:** Coffee is a common source of caffeine. Caffeine influences the autonomic nervous system, as evidenced by its effects on heart rate variability (HRV) as a measure of sympathetic vs. parasympathetic response. This investigation aimed to examine the effect of coffee consumption on HRV and related markers.

Alyssa Olenick is a 4th-year Ph.D. candidate at the University of Georgia Kinesiology Department under Dr. Nathan Jenkins. She holds a research interest in metabolic flexibility and substrate oxidation during exercise and feeding. Specifically, she is interested in the roles that sex, menstrual cycle, muscle and mitochondrial capacity contribute to this. **Title**: High intensity interval exercise vs. a high fat meal as tests of metabolic flexibility: the role of fitness status, sex, and lean mass in young adults. **Description:** We explored whether high intensity interval exercise could provide a novel means of testing metabolic flexibility. The impact of aerobic fitness status and sex on metabolism were assessed in recreationally trained men (n=12) and women (n=10). Fat and carbohydrate oxidation were measured during HIIE and a high fat meal challenge. VO2max and mitochondrial capacity via near infrared-spectroscopy were assessed.

Brandon Roberts, PhD, CSCS*D, TSAC-F is a Captain serving in the U.S. Army as a Research Physiologist in the Military Performance Division at the U.S. Army Research Institute of Environmental Medicine. His mission is to optimize Warfighter health and performance through medical research. CPT Roberts has a BS in Microbiology, MS in Human Performance, and PhD in Muscle Biology, all from the University of Florida. He completed a NIH postdoctoral fellowship in Exercise Medicine at the University of Alabama at Birmingham. He is currently focused on enhancing musculoskeletal adaptations to prevent injury and accelerating Soldiers return to duty after injury. **Title:** Effects of NSAIDS on muscle and bone: from cells to soldiers. **Description**: Soldiers have an elevated risk of musculoskeletal injury compared to athletes and the general population. Our recent data indicate that non-steroidal anti-inflammatory drugs (NSAIDs) may play a role, especially in relation to the increased risk of stress fracture during basic combat training. Therefore, this presentation will provide an overview of our bench-to-bedside program to determine the role that specific NSAIDs play in musculoskeletal health.

Mike Roberts PhD is an Associate Professor in the School of Kinesiology at Auburn University. His laboratory utilizes various models

that include cell culture, rodents, and human models to investigate how diet and exercise affect biomarkers related to health outcomes. Dr. Roberts has published over 160 research articles in peer-reviewed journals, has authored several book chapters, and has given several lectures at national and international venues related to skeletal muscle physiology and nutritional supplements**. Title:** The nuance of skeletal muscle hypertrophy. **Description**: Scientists have determined that several signaling cascades in skeletal muscle respond to resistance exercise and nutritional measures. However, there are several "wrinkles" in the literature related to muscle growth that remain largely unexplored. The purpose of this talk is to discuss how much scientists and practitioners are unaware of in relation to how muscle grows. Additionally, emerging literature in this area will be discussed. Finally, future directions for innovative research will be mentioned.

Catherine Saenz PhD RD is an Assistant Professor of Kinesiology at Jacksonville University. She is a registered dietician and a certified

strength and conditioning specialist from the National Strength and Conditioning Association. She earned her Bachelors of Science from the University of Maryland, her Masters of Arts from the University of Connecticut, and her Ph.D. from The Ohio State University. She completed her post-doctorate training with the Cleveland Indians in Nutrition and Sport Science and her clinical dietetics training through Iowa State University. She specializes in exercise physiology and nutrition, with a focus on ketogenic diets, across a spectrum of populations. Her primary areas of focus include athletic populations, metabolic health and disorders, and health initiatives in underserved communities. Dr. Saenz is especially passionate about translating and sharing this information with the classroom, community, and athletic arenas. **Title:** Fuel with fat, thrive on ketones: Effects of a Well-formulated Ketogenic Diet on Body composition, Mood, and Satiety in Women. **Description**: Habitual diet shifts lead to systemic changes in physiology that extend far beyond energy metabolism. In this talk we will synthesize the latest research on how a habitually consumed ketogenic diet impacts other areas of health such as satiety-cues, mood, and body composition. We will then focus on available research specific to female population and how this literature may translate to women, women's health & performance, and future directions.

Gabriel J. Sanders PhD CSCS CSNS CISSN is an Associate Professor of Exercise Science at Northern Kentucky University. As a

researcher and sports scientist, Dr. Sanders has consulted with professional organizations and other universities that range from Power 5 to mid-major conferences to research and analyze sports science and wearable technology data. At NKU, Dr. Sanders works with the Director of Sports Performance to assess student-athlete's physiological data and training workloads with the main goal of reducing injuries, improving performance, and enhancing student-athlete health and well-being throughout their career at NKU. His research focuses on neuro and physiologic testing and monitoring athlete's daily workloads utilizing wearable microsensor technology. A large component of this research includes detailed secondary data analyses with the goal to identify beneficial or harmful workloads and how they influence performance and perceived exertion. **Title:** Workload and neurological performance in D1 anaerobic athletes. **Description:** Managing daily external and internal workloads in athletes is a key component to maximizing athletic performance. Readiness to perform can be assessed via neuromuscular performance tests. Combining the data from neuromuscular tests and daily workloads throughout a season can yield information that may be beneficial to enhance practice periodization protocols thus optimizing game performance in athletes.

John Eric Smith PhD is an Associate Professor and Applied Physiology Laboratory Director at Mississippi State University with

interests in carbohydrate and training for performance enhancement. Prior to his arrival at Mississippi State University, he was a research scientist for the Gatorade Sports Science Institute with a focus in carbohydrate metabolism and performance. He earned his master's and doctoral degrees at Auburn University focusing on thermoregulation and performance. Dr. Smith actively contributes to the scientific field through research publications and presentations while also contributing to sports and exercise through assisting with the application of science with multiple elite and professional sports. **Title:** Carbohydrate Recommendations for Training. **Description:** This talk is going to discuss the role of carbohydrate intake around exercise. The role of pre-, during, and post-exercise carbohydrate will be discussed along with the dosing in both aerobic and anaerobic exercise.

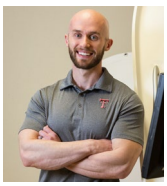
Jeffrey R. Stout PhD FNSCA FISSN is a Professor and Founding Director of the School of Kinesiology and Physical Therapy in

the College of Health Professions and Sciences at the University of Central Florida. Dr. Stout earned his master's and doctoral degrees in Exercise Physiology from the University of Nebraska-Lincoln and has more than 25 years of university teaching experience. Throughout his career, Stout has co-authored more than 300 peer-reviewed publications, 300 national and international presentations, eight books and 12 book chapters focusing on nutrition, exercise performance and body composition in youth and older populations. According to Google Scholar, his work has been cited over 15,530 times in the literature (h-index 61, i10-index 228). Furthermore, Stout has served on 28 Ph.D. students' dissertation as the Chair or committee member. Dr. Stout is also a Past-President of the ISSN. **Title and Description: Dr. Stout is this year's Keynote Address: "The sports supplement revolution – through my lens."** Dr. Stout is considered one of the pioneers of the sports supplement field. He has conducted a plethora of original work on creatine, beta-alanine, and a host of other supplements. In this seminar, he will provide some historical context to our field. When did sports nutrition as a field of study actually become acceptable? What was the field like pre-2000? What is the role of the ISSN and other academic organizations in our field?

Matthew T. Stratton MS CISSN is a currently a doctoral candidate in the Energy Balance and Body Composition Laboratory at Texas

Tech University studying under Dr. Grant Tinsley. Prior to attending Texas Tech University, he received his M.S. with Honors in Applied Exercise and Health Sciences at Kennesaw State University. He received his B.S. in Exercise Science from the University of New Mexico, graduating Summa Cum Laude and receiving the outstanding exercise science graduate award. During his undergraduate studies, he held internships in the UNM Exercise Physiology Lab and KSU Human Performance Lab, assisting in both applied and molecular research. His research centers on examining both the applied and molecular responses to various supplementation and nutritional interventions, with a focus on muscular strength, power, and body composition. Matthew has presented on the topics of protein and supplementation, and specialty diets at multiple universities, as well as at regional and national conferences. In addition, he has published on the topics of nutrition, sports performance, and aging. He is a Certified Personal Trainer from the American College of Sports Medicine (ACSM-CPT), a Certified Sports Nutritionist (CISSN) through the International Society of Sports Nutrition, and a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association. **Title:** Is the clock your greatest ally? An evaluation of the current intermittent fasting literature. **Description:** This talk will examine the literature regarding the increasingly popular dietary practice, intermittent fasting. First the discussion will dispel the common myths about what intermittent fasting actually is and isn't along with the various protocols that constitute intermittent fasting. Then the focus will move to intermittent fasting's effect on alterations in body composition and muscular performance both in a calorie controlled and non calorie controlled setting with an emphasis placed on active populations.

Grant Tinsley PhD CISSN graduated summa cum laude with dual degrees in Physiology and Nutritional Sciences from Oklahoma



State University. He then completed a M.S. degree in Biomedical Sciences at Colorado State University and a Ph.D. in Kinesiology and Exercise Nutrition at Baylor University. Dr. Tinsley is a Certified Sports Nutritionist (CISSN) and Certified Strength and Conditioning Specialist (CSCS,*D). He is currently an Associate Professor at Texas Tech University and the Director of the Energy Balance & Body Composition Laboratory. **Title:** Body composition assessment: lack of standardization can wreak havoc. **Description:** Using recent, unpublished data from our laboratory, this presentation will describe the effects of a lack of participant standardization on longitudinal interpretations of body composition changes. The presentation will demonstrate the effects of varying standardization conditions for a wide variety of common body composition assessment methods and provide practical recommendations regarding which methods may be most appropriate to use when standardization is not possible.

Brandon Willingham PhD RD is an Assistant Professor of Kinesiology at Coastal Carolina University; he earned his PhD at Florida

State University under Dr. Mike Ormsbee. **Title:** Betaine Supplementation on Fluid Balance and Thermoregulation in the Heat **Description:** A primary response to thermal and hypertonic stressors (such as those presented during exercise in the heat) involves the up-regulation of the betaine receptor which increases intracellular betaine concentration. By stabilizing proteins and functioning as an osmolyte, daily betaine supplementation is known to improve fluid balance and heat tolerance in cell culture and animal models. But does it work in humans?

Mark your calendar for these events in 2021-22

- ISSN Webinar: The Science and Business of Personal Training and Sports Nutrition – Sept 18, 2021

- ISSN-NSU Webinar: Female Health and Performance – Oct 2, 2021

- 3rd Annual *Society for NeuroSports* Conference – Jan 21-22, 2022 – at the Hollywood Beach Marriott, 2501 North Ocean Drive, Hollywood Florida

- The 19th Annual ISSN Conference and Expo – June 16-18, 2022 - at the Westin Fort Lauderdale Beach Resort, 321 North Fort Lauderdale Beach Blvd., Fort Lauderdale Florida