

The 19th Annual ISSN Conference and Expo

issn

Fort Lauderdale Beach FL

June 16-18, 2022

international society of sports nutrition®
The ISSN - Why Go Anywhere Else?™

Westin Fort Lauderdale Beach Resort
321 North Fort Lauderdale Beach Blvd.
Fort Lauderdale, FL USA 33304

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



Thursday, June 16 - 10:45am - 4:45pm: Registration is open

Friday, June 17 - 7:00am - 3:00pm: Registration is open; 5:00pm – 7:00pm: Drinks and Poster Presentations

Saturday, June 18 - 8:00am – 12noon: Registration is open

| Day 1: June 16 Thursday | Room: Las Olas Ballroom |
|-------------------------|--|
| 12:15 pm - 12:25 pm | Welcome and Introduction Moderators: Chad Kerksick PhD FISSN and Erik Bustillo MS RD FISSN |
| 12:30 pm - 1:00 pm | The Science and Application of Fasted vs Fed Cardio for Fat Loss. Guillermo Escalante DSc FISSN |
| 1:10 pm - 1:40 pm | NAD, Muscle and Athletic Performance: Current Research & Future Needs Mona Rosene MS RD Sponsored by Chromadex |
| 1:50 pm - 2:20 pm | This Will Blow Your Mind: Creatine and Cognition Scott Forbes PhD |
| 2:30 pm - 3:00 pm | Practical Applications for Fueling Today's Young Athletes Wendi Irlbeck MS RDN LD CISSN |
| 20-min Break | |
| 3:20 pm - 3:50 pm | Citicoline: A Potent Brain-health Nutrient and Nootropic Akihito Nishimura MS Sponsored by Kyowa Hakko |
| 3:50 pm - 4:00 pm | Astaxanthin as a Dietary Tool for Exercise Training Karen Hecht PhD Sponsored by AstaReal |
| 4:10 pm - 4:40 pm | The Science of Cannabidiol (CBD) Helena Yardley PhD |
| 4:50 pm - 5:20 pm | A Tribute to Dr. Kevin Tipton's Work on Dietary Protein Army Ferrando PhD FISSN |

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| Day 2: June 17 Friday | Room: Las Olas Ballroom General Tutorials |
| | Moderator: Drew Gonzalez MS CISSN |
| 8:10 am -8:40 am | The Trouble with Men: Is Testosterone to Blame? Rick Collins Esq. FISSN and Jack Darkes PhD |
| 8:40 am - 9:10 am | The Evolutionary Inertia of Weight Loss and Body Recomposition Kurt Escobar PhD |
| 9:10 am - 9:20 am | noolVL - a Non-stimulant Nootropic Katie Emerson MS RD Sponsored by Nutrition 21 |
| 10-min Break | |
| | Original Investigations |
| | Moderator: Jonathan Mike PhD |
| 9:30am - 10:00am | How to Make a Winner: How Hormones and Experience Shape the Brain of the Victor Allie Holschbach PhD |
| 10:00 am - 10:10am | Caffeine supplementation: What are the effects of CYP1A2 and ADORA2A genes, paraxanthine, and habitual caffeine consumption on resistance exercise and jumping performance Jason Cholewa PhD |
| 10:10 am - 10:20 am | The Effects of Citrus Flavonoids on Exercise Performance: an RCT Yala Stevens PhD Sponsored by Bio Actor |
| 10-min Break | |
| | Moderator: Cassie Evans MS RD CISSN |
| 10:30 am - 11:00 am | Anthocyanin-Rich Supplementation: Potential for Sport and Exercise Nutrition Mark Willems PhD |
| 11:00 am - 11:30 pm | The Dose-Response Effects of Arachidonic Acid on Primary Human Skeletal Myoblasts Brandon Roberts PhD |
| 11:30 am - 12:00 pm | The Unique Ways in Which Bacillus Coagulans GBI-30, 6086 (BC30) May Aid in Health, Recovery, and Exercise Adaptations Chad Kerksick PhD FISSN Sponsored by Kerry |
| 75-min Lunch Break 12:00 pm - 1:15 pm | Check out the hotel restaurants: Lona Cocina & Tequileria or Waves Bar & Grill 12:15 - 1:00 PM Attention All Students! A Roundtable on Grants and Funding Research Arny Ferrando PhD FISSN, Marcos Bamman, PhD, Tim Ziegenfuss PhD FISSN, Jeff Stout PhD FISSN Moderator: Brent Uken, MS, CISSN |
| | General Tutorials |
| | Moderator: Brent Uken MS CISSN |
| 1:15 pm - 1:45pm | Serving Those Who Serve on the Thin Red Line Annette Zapp MA CISSN |
| 1:45 pm - 2:15 pm | Dietary Practices and Supplement Use Among CrossFit Participants: Findings, Recommendations, and Future Directions Matt Brisebois PhD |
| 2:15 pm - 2:45 pm | I Like Big Recovery and I Cannot Lie: Sports Supplements You Can't Deny Jonathan Mike PhD |

| 20-min Break | |
|-------------------|---|
| 3:05 pm - 3:45 pm | <p style="text-align: center;">ISSN's Data Blitz 60 seconds to present original unpublished data! Moderator: Chris Algieri MS CISSN Judges: Jeff Stout PhD FISSN, Kelly Johnson PhD, Kurt Escobar PhD, Annette Zapp MA, Katie Hirsch PhD Winners will be announced on Saturday.</p> |
| 3:55 pm - 4:50 pm | <p style="text-align: center;">Roger Harris Honorary Keynote Address Andy Jones PhD The beet goes on: new discoveries in dietary nitrate and exercise performance Sponsored by the ISSN Moderator: Trisha VanDusseldorp PhD FISSN</p> |
| 5:00 pm - 7:00 pm | <p style="text-align: center;">Location: Atlantic Ballroom Happy Hour and Poster Presentations Lead authors please be present at your poster Judges: Gerseli Angeli PhD, Victoria Burgess PhD CISSN, David Church PhD, Jason Curtis PhD, Kurt Escobar PhD, Scott Forbes PhD, Adam Gonzalez PhD, Lia Jiannine PhD CISSN, Kelly Johnson PhD, Susan Kleiner PhD RD FISSN, Jonathan Mike PhD, Tobin Silver PhD</p> |

| Day 3: June 18 Saturday | Las Olas Ballroom |
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| | Moderator: Trisha VanDusseldorp PhD FISSN |
| 8:45 am - 9:15 am | <p style="text-align: center;">Melvin Williams PhD Memorial Address on Ergogenic Aids This seminar will highlight the latest original research on a nutritional ergogenic aid. Citrulline and Resistance Exercise Performance Adam Gonzalez PhD CISSN</p> |
| 9:15 am - 10:10 am | <p style="text-align: center;">President's Address Marcas Bamman PhD Convergence of Exercise Biology and Machine-Learning to Understand Response Heterogeneity sponsored by the ISSN</p> |
| 20-min Break | |
| Original Investigation | |
| | Moderator: Douglas Kalman PhD RD FISSN |
| 10:30 am - 11:00 am | <p style="text-align: center;">Warfighter Recovery Nutrition - Optimizing Protein Quantity, Quality, and Combat Ration Delivery Systems David Church PhD</p> |
| General Tutorial | |
| 11:10 am - 11:40 am | <p style="text-align: center;">Polyphenols as Potential Ergogenic and Body Composition Modulators Lonnie Lowery PhD</p> |
| 11:50 am - 12:20 pm | <p style="text-align: center;">ISSN Updates and Awards You must be present to win your prize! Trisha VanDusseldorp PhD FISSN, Rick Kreider PhD FISSN Douglas Kalman PhD RD FISSN</p> |
| 12:20 pm - 1:20 pm | Moderator: Allie Holschbach PhD Lunch Break on your own |

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| | <p>Special Session for Students: Post-Doc - What's it all about? 12:30 - 1:10 pm: Army Ferrando PhD FISSN, Marcas Bamman PhD, Shawn Arent PhD FISSN, David Church PhD</p> |
| | <p>Special Session: Symposium on Women in Science Moderator: Hannah Cabre RD PhD Candidate</p> |
| 1:20 pm - 2:20 pm | <p>The Inclusion of Women in Scientific Research: Methodological Considerations and Opportunities for Collaboration Katie Hirsch PhD CISSN and Abbie Smith-Ryan PhD FISSN</p> |
| 10-min Break | |
| | Moderator: Tony Ricci EdD FISSN |
| General Tutorials | |
| 2:30 pm - 2:50 pm | <p>Nutritional Considerations for Female Fighters During Fight Week Jackie Kaminski MS RD CISSN sponsored by the NASM</p> |
| 3:00 pm - 3:20 pm | <p>Nutrition for Combat Athletes Charles Stull MS RD sponsored by UFC Performance Institute</p> |
| 10-min Break | |
| Brief Communications | <p>Mike Greenwood PhD Memorial Sessions Moderator: Rick Kreider PhD FISSN (Original unpublished investigations only) – 10 min talks</p> |
| 3:30 pm - 3:40 pm | <p>Chester Sokolowski PhD Candidate: The Relationship Among Binge Drinking, Musculoskeletal Composition, Physical Performance, and Metabolic Health in Young Adult Females <i>Florida State University</i></p> |
| 3:45 pm - 3:55 pm | <p>Hannah Cabre RD PhD Candidate: Hormonal Contraception, Strength, and Recovery <i>University of North Carolina - Chapel Hill</i></p> |
| 4:00 pm - 4:10 pm | <p>Drew Gonzalez PhD Student - Nutritional Strategies for Firefighters: What we know and what we don't <i>Texas A&M</i></p> |
| 4:15 pm - 4:25 pm | <p>Veronica Mekhail MS Student - The Effects of Pre-workout Supplementation on Measures of Alertness and Mood <i>Nova Southeastern University</i></p> |
| 4:30 pm - 4:40 pm | <p>Jeffery Heilesen PhD Student - Investigating the potential differential effects of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) on recovery from exercise-induced muscle damage <i>Baylor University</i></p> |
| 4:45 pm - 4:55pm | <p>Katie Kennedy MS Student - Sex Differences in Skeletal Muscle Fatiguability <i>University of South Alabama</i></p> |
| Closing Remarks | Trisha VanDusseldorp PhD FISSN, Erik Bustillo MS RD FISSN, and Chad Kerkick PhD FISSN |



Speaker Name: **Marcas M Bamman**

Degree/Certifications: PhD, FACSM

Talk Title: Convergence of Exercise Biology and Machine-Learning to Understand Response Heterogeneity

Talk Summary: Exercise training in its many forms confers myriad health benefits, but our understanding of its mechanistic underpinnings remains limited. Acute responses to exercise, as well as adaptations to periods of consistent exercise training, are complex, multidimensional, modulated in part by a host of modifiable and non-modifiable factors, and in many ways individualized. And as the data acquisition toolset continues to expand, deciphering the complex array

of information from the smallest of puzzle pieces (e.g., molecules) to the whole human is becoming even more challenging. This presentation will therefore describe methods of leveraging machine-learning strategies to advance exercise biology in the context of response heterogeneity. **BIO:** Marcas Bamman is a Senior Research Scientist and Director of Healthspan, Resilience, and Performance Research at the Florida Institute for Human & Machine Cognition (IHMC). In this capacity he helps catalyze high-impact research development and leads clinical and translational research to advance knowledge across the spectrum from elite performers to chronic disease populations. His research spans from biological underpinnings to clinical outcomes.



Speaker Name: **Matt Brisebois**

Degree/Certifications: PhD, CSCS

Talk Title: Dietary Practices and Supplement Use Among CrossFit Participants: Findings, Recommendations, and Future Research Directions

Talk Summary: Anecdotally, diets such as Paleo and Intermittent Fasting are popular among CrossFit participants. These eating patterns may conflict with recommendations from Sport Nutrition experts on the optimal macronutrient intake for

high-intensity exercise performance. CrossFit participants may also consume dietary and sports supplements to improve their health or physical performance. However, data on the diet and supplement practices of CrossFit participants are lacking. We distributed a questionnaire over dietary practices and supplement use among CrossFit participants and analyzed 2,576 complete responses. The health and performance implications of the highest-reported diets and supplements will be discussed. **BIO:** Dr. Matt Brisebois is an Assistant Professor of Exercise Science at the University of South Carolina Upstate. Before earning his PhD, he was a CrossFit coach in Dallas for 10 years. He has authored multiple publications on High-Intensity Functional Training and his current research goals are to investigate the effects of nutrition and supplements on CrossFit performance.



Speaker Name: **Hannah Cabre**

Degree/Certifications: PhD(c), RDN, CISSN

Talk Title: Hormonal Contraception, Strength, and Recovery

Talk Summary: In kinesiology research, only 6% of studies are conducted in female-only cohorts. The lack of female-only studies is often attributed to the complexity of hormonal fluctuations throughout the menstrual cycle or the perceived barrier of various hormonal contraception types. Hormonal contraceptives provide exogenous female sex hormones altering the female reproductive axis, which has strong implications for health and athletic performance. 49.5% of female athletes report using HCs with oral contraceptives and intrauterine devices being most commonly used. Understanding how oral contraceptives and intrauterine devices influence strength and recovery outcomes between hormone cycle phases can provide the opportunity to expand inclusion criteria for females in exercise science research. Additionally, the physiological impact of oral contraceptive use and intrauterine devices on muscular adaptations may influence performance considerations such as nutrient timing, exercise prescription and recovery recommendations, and dietary supplements. **BIO:** Hannah Cabre, MS, RDN, CISSN is a doctoral student in the Human Movement Science Curriculum, which is part of the UNC Chapel Hill School of Medicine. Her research interests focus on the effects of exercise and nutrient timing on body composition, cardiorespiratory fitness, and metabolic health, specifically in women.



Speaker Name: **David Church**

Degree/Certifications: PhD, CSCS*D

Talk Title: Warfighter Recovery Nutrition - Optimizing Protein Quantity, Quality, and Combat Ration Delivery Systems

Talk Summary: We embarked on a series of studies designed to develop the next generation of protein containing combat rations. The overarching goal was to reduce muscle mass and performance loss that occurs in combat military personnel operating in multi-stressors environments. The first study was design to delineate the dose of amino acids required to promote anabolism during large diet and exercise induced energy deficit. We observed marked anabolic resistance in young health military personnel undergoing 5 days of 30% energy deficit. The second was focused on determining the best protein matrix (free form plus whey, whey protein, or meal ready to eat) to provide that amino acid dose. We observed the most favorable effects with liquid protein formats. The third tested whether additional non-protein calories can help offset the anabolic resistance that occurs in these conditions. The last study is testing the develop ration component in a field study during Norwegian Arctic Military Training. Set to be completed in March with data analyzed shortly thereafter. In addition, we ran a trial alongside it examining if testosterone undecanoate supplementation can help offset muscle and performance losses in prolonged multi-stressor environments. **BIO:** David Church is currently an assistant professor and at the University of Arkansas for Medical Sciences.

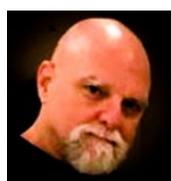


Speaker Name: **Jason Cholewa**

Degree/Certifications: Ph.D.

Talk Title: Caffeine supplementation: What are the effects of CYP1A2 and ADORA2A genes, paraxanthine, and habitual caffeine consumption on resistance exercise and jumping performance

Talk Summary: Caffeine is one of the most widely used pre-workout supplements around the world. Yet, large inter-individual variation in response to caffeine is observed. Previous reports suggest that single nucleotide polymorphisms (SNPs) in the CYP1A2 (rs762551) gene, which codes for the enzyme responsible for greater than 90% of caffeine metabolism, may explain some of the inter-individual differences. In these studies, subjects homogenous for AA alleles (aka: fast caffeine metabolizers) tend to show greater ergogenic responses compared to C allele carriers (aka: slow metabolizers). These findings are paradoxical: why would faster caffeine elimination yield greater ergogenic effects? Our study explores this question in the context of resistance exercise. **BIO:** Jason Cholewa is an Associate Professor at the University of Lynchburg. His research explores the interactions between resistance training hypertrophic adaptations, sport nutrition/supplement interventions, and the underlying mechanisms. Jason is an associate editor of the Journal of the International Society of Sports Nutrition and coaches physique athletes.



Speaker Name: **Rick Collins Esq. FISSN and Jack Darkes PhD**

Degree/Certifications: Esq., FISSN

Talk Title: The Trouble with Men: Is Testosterone to Blame?

Talk Summary: The concept of “toxic masculinity,” describing stereotypical masculine norms that can be viewed as harmful, has become inextricably bound with the hormone, testosterone. The term “testosterone poisoning” has been used to describe men’s hyper-aggressive or otherwise “bad” behavior. Much of the popularized research literature has not only viewed

these issues almost exclusively from a biological perspective but has also most often focused on the anti-social correlates of testosterone, such as violence, anger, and aggression. But could the “manly” hormone also be associated with positive behaviors, such as honesty, reciprocity, or fairness? What role does evolutionary psychology play in understanding the role of testosterone and its modern manifestations in masculinity? And could correlates such as status-seeking, dominance, prestige, and competitiveness underlie both anti-social and pro-social attributes, mostly as a function of context and culture, with mainstream media portrayals reflecting the emerging biases in prevailing cultural norms? **BIOS:** Rick Collins, Esq., is a lawyer dedicated to the health and fitness community. He received his Bachelor’s Degree in Psychology from Hofstra University and his Juris Doctorate degree from Hofstra School of Law, where he attended on a full academic scholarship and served on the *Law Review*. Rick serves as legal advisor to the International Society of Sports Nutrition (ISSN) and the International Federation of BodyBuilders Pro League (IFBB). Jack Darkes PhD is a licensed clinical psychologist, Associate Professor of Instruction, and the Director of the Psychological Services Center at the University of South Florida (USF).



Speaker Name: **Guillermo Escalante**

Degree/Certifications: DSc, MBA, ATC, CSCS*D, FISSN

Talk Title: The science and application of fasted vs fed cardio for fat loss

Talk Summary: Aerobic exercise is often used as part of an exercise program to increase caloric expenditure for the purposes of improving body composition. One method employed by many individuals is to perform aerobic exercise in the fasted state. The theory behind this strategy is that low glycogen levels after an overnight fast allow for greater mobilization of stored fat to be used for fuel since carbohydrates are not readily available to produce energy. The purpose of this talk is to examine the existing literature on the effect of fasted versus fed cardio on improving body composition. Specifically, the acute and chronic effects of fasted versus fed aerobic exercise will be discussed as well as practical/scientific implications for physique competitors versus other populations where extreme levels of leanness are not required. **BIO:** 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 and College of Natural Sciences Dean Fellow 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.



Speaker Name: **Kurt Escobar**

Degree/Certifications: PhD, CISSN

Talk Title: The Evolutionary Inertia of Weight Loss and Body Recomposition

Talk Summary: If being fit and lean is so beneficial for health, why is it so difficult to get and stay fit and lean? Why is it easier to gain fat and lose muscle than it is to lose fat and gain muscle? Why do I burn less calories the more I exercise and diet? And why do gains disappear so quickly when I stop training? The answer is your genes, our genes as humans. Humans are products of billions of years of evolution and our genes have been shaped by our ancestral past which aim to conserve energy above all else. This means training, losing weight, and being “fit” is the opposite of what our genes would have us do and our body will sabotage our goals by tanking metabolic rate, making us hungry, and destroying gains as soon as training ceases. This talk will discuss why this is part of the human biological and psychological hardware and provide some practical tools to overcome this evolutionary inertia. **BIO:** Kurt Escobar is an Assistant Professor of Exercise Physiology and Co-Director of the Physiology of Exercise and Sport (PEXS) Lab at

California State University, Long Beach. His work and teaching center around understanding the underlying physiology of training and exercise nutrition. He has also worked in the field of training and nutrition for over a decade and currently works with the aging population.



Speaker Name: Katie Emerson

Degree/Certifications: MS, RD, LDN

Talk Title: nooLVL®- a non-stimulant nootropic

Talk Summary: nooLVL® is a patented, non-stimulant nootropic ingredient that boosts cognitive performance in gamers. The Bonded Arginine Silicate in nooLVL® is a highly bioavailable, long-lasting form of arginine that increases nitric oxide production and blood flow, allowing for enhanced delivery of oxygen and nutrients to blood flow-sensitive tissues, such as the brain. The Inositol in nooLVL® is a potent, cognitive-enhancing nutrient that is vital for the functioning of some neurotransmitters involved in learning and memory. The optimized combination of these ingredients, at a specific ratio, synergistically provides cognitive benefits that gamers are looking for in a nootropic. nooLVL now has 3 clinical studies supporting its ability to confer cognitive benefits such as improved attention/concentration, enhanced executive function, increased perceived energy levels, heightened reaction times and a reduction in errors in as quick as a single dose. This presentation will summarize the cognitive effects seen in gamers when nooLVL is given as demonstrated by 3 separate clinical trials. **BIO:** Katie Emerson is a registered and Licensed Dietitian in Florida. She holds a bachelor's degree in science education and a master's degree in Nutrition and Dietetics with a concentration in sports nutrition. She has experience working with collegiate athletes from the University of Miami, tactical personnel like BSO police, firefighters, and the SWAT team along with level one trauma patients in the hospital setting. Katie is currently the manager of Scientific Affairs at Nutrition21.



Speaker Name: Arny Ferrando

Degree/Certifications: PhD FISSN

Talk Title: Kevin Tipton Memorial

Talk Summary: A scientific summary of Dr. Kevin Tipton's contribution to the field of protein supplementation, protein metabolism, and exercise will be presented. Entertaining anecdotes about his initial education and research endeavors will be presented. The talk will center on his initial work in Galveston as a pre-, post-doctoral fellow, and Asst Professor where he demonstrated the importance of the essential amino acids during exercise on muscle protein metabolism, the amount required, and the timing of administration. After his move to the UK, his work continued at 3 different Universities and refined investigations of protein intake proximal to exercise, amount/type of exercise and required protein intake, and investigations entailing fish oil and muscle protein metabolism. His legacy will remain that of an excellent scientist of great humor, generosity, and loyalty. **BIO:** Dr. Ferrando's work has focused on the preservation of skeletal muscle, and includes investigations utilizing exercise, pharmacological and nutritional interventions to ameliorate muscle loss. His many investigations have spanned diverse circumstances of muscle loss; including space flight, kidney disease, heart failure, burn injury, trauma, post-surgical rehabilitation, and aging. Much of his work focuses on optimal nutritional/protein intake in these circumstances, and he holds 2 patents on a nutritional formulation designed to improve muscle recovery.



Kevin Tipton PhD



Speaker Name: Scott Forbes

Degree/Certifications: PhD, CISSN, CSEP-CEP

Talk Title: This Will Blow Your Mind: Creatine and Cognition

Talk Summary: The majority of research involving creatine supplementation has focused on skeletal muscle, however, there is accumulating research that has focused on creatine and the brain. This talk will provide an overview of how creatine works in the brain and discuss the current evidence which has shown promising effects of creatine on cognitive function.

BIO: Dr. Scott Forbes is an associate professor in the department of Physical Education Studies at Brandon University and an adjunct professor in the faculty of Kinesiology and Health Studies at the University of Regina in Canada. Dr. Forbes is a certified sport nutritionist through the International Society of Sport Nutrition (ISSN), and a clinical exercise physiologist and high-performance specialist through the Canadian Society for Exercise Physiology (CSEP).



Speaker Name: **Adam Gonzalez**

Degree/Certifications: PhD, CISSN, CSCS

Talk Title: Citrulline and Resistance Exercise Performance

Talk Summary: Citrulline, a nonessential amino acid found primarily in watermelon, has recently garnered much attention for its potential to augment arginine bioavailability, nitric oxide production, and exercise performance. This presentation will summarize the theoretical rationale behind citrulline supplementation and review the available scientific evidence assessing the effects of citrulline supplementation on aerobic and anaerobic performance in humans. **BIO:** Adam M. Gonzalez is an assistant professor in the Department of Health Professions at Hofstra University. He holds a Ph.D. in Exercise Physiology from the University of Central Florida. He has also earned a bachelor's degree in Health and Exercise Science and a master's in Health Science Education from The College of New Jersey.



Speaker Name: **Drew Gonzalez**

Degree/Certifications: MS, CISSN, SCCC, CSCS*D, TSAC-F*D

Talk Title: Nutritional Strategies for Firefighters: What we know and what we don't

Talk Summary: Firefighters are at a heightened risk for developing cardiovascular disease due to the numerous physiological and psychological stressors they are exposed to on-duty. Cardiovascular disease mortality among firefighters is strongly connected to poor nutritional habits and hyperenergetic dietary patterns. To date, only a handful of studies have aimed to improve cardiometabolic health via dietary approaches among the fire community. Time restricted feeding (TRF) is among the dietary interventions conducted in the fire community to date. While there is promise, more research is needed to better understand the utility of dietary interventions, such as TRF, among firefighters. The present literature regarding nutritional strategies such as TRF among firefighters will be discussed in addition to other potential nutritional considerations for the fire community. **BIO:** Drew Gonzalez is a PhD student in the Health & Kinesiology (HLKN) Department at Texas A&M University (TAMU) Studying Kinesiology under Dr. Richard Kreider's supervision. He currently works as a Graduate Teaching Assistant for HLKN and a Student Research Assistant in the Exercise and Sport Nutrition Laboratory (ESNL) at TAMU. Drew's research interests focus on the impacts of nutrients, nutrient timing, and exercise on cardiorespiratory fitness, cognitive performance, and cardiometabolic health.



Speaker Name: **Karen A. Hecht**

Degree/Certifications: Ph.D.

Talk Title: Astaxanthin as a Dietary Tool for Exercise Training.

Talk Summary: Dietary antioxidants have been used to help maintain redox homeostasis, helping to buffer the effects of oxidative stress during exercise. In this seminar, we'll examine dietary astaxanthin as a tool for managing redox homeostasis during functional training. Improving antioxidant capacity is one strategy used to support endurance and recovery in populations with increased levels of basal oxidative stress. We'll review clinical evidence supporting the combination of exercise and astaxanthin supplementation for promoting response to exercise training in sports athletes, seniors, and first responders. **BIO:** Dr. Karen Hecht is the Scientific Affairs Manager at AstaReal Inc., producer and purveyor of the most studied brand of natural astaxanthin from algae. Dr. Hecht studied algal molecular biology as a postdoctoral associate at the Pacific Northwest National Laboratory. She earned her Ph.D. in Biological Sciences at the University of Pittsburgh, and a B.Sc. in Biochemistry from the University of Toronto.



Speaker Name: **Jeffery L. Heilesen**

Degree/Certifications: MS, RD, CSSD, CSCS

Talk Title: Investigating the potential differential effects of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) on recovery from exercise-induced muscle damage

Talk Summary: It is well established that long-chain omega-3 polyunsaturated fatty acids (eicosapentaenoic acid [EPA] and docosahexaenoic acid [DHA]) are associated with recovery from exercise-induced muscle damage (EIMD). However, it is unclear if these effects are mediated through EPA or DHA alone or in combination. This presentation will summarize our findings from our head-to-head trial of EPA and DHA on recovery from EIMD. **BIO:** Jeffery Heilesen has been a U.S. Army dietitian since 2008 and currently a doctoral student in the Department of Health, Human Performance and Recreation at Baylor University. His research primarily focuses on the applications of omega-3 supplementation on cognitive and functional skeletal muscular outcomes.



Speaker Names: **Katie Hirsch** PhD, CISSN, EP-C, **Abbie Smith-Ryan**, PhD, CISSN, CSCS*D, FISSN

Talk Title: The Inclusion of Women in Scientific Research: Methodological Considerations and Opportunities for Collaboration

Talk Summary: Inclusion of females in exercise and nutrition research is astoundingly low. This talk will cover key physiological considerations to account for when studying women and will discuss practical ways to implement into scientific research. Additionally, we will highlight key areas of opportunity for collaboration: what science is currently happening (broadly), where it's happening at, how the ISSN and people within ISSN are contributing/moving the field forward, ways to get involved, gaps, and targets moving forward. The goal is to bring light to the work that is being done to move the field forward and the great people who are doing it, with the hope of directly increasing the evidence in this space. **BIOs:** Katie R. Hirsch, PhD, EP-C, CISSN is currently a postdoctoral research fellow in the Center for Translational Research in Aging & Longevity at the University of Arkansas for Medical Sciences. Her research focuses on the effects of exercise and nutrition on body composition, muscle, and protein metabolism, and cardiometabolic health, with a focus on sex differences and women's health across the lifespan. Dr. Hirsch completed her PhD in Human Movement Science and MA in Exercise Physiology at the University of North Carolina at Chapel Hill and BS in Exercise Science at Truman State University in Kirksville, Missouri. She is a Certified Exercise Physiologist with the American College of Sports Medicine and Certified Sports Nutritionist with the International Society of Sports Nutrition. Dr. Hirsch will be starting as an Assistant Professor in the Department of Exercise Science in the Arnold School of Public Health at the University of South Carolina Fall 2022.



Speaker Name: **Allie Holschbach**

Degree/Certifications: PhD BS

Talk Title: How to Make a Winner: How Hormones and Experience Shape the Brain of the Victor

Talk Summary: Winning boosts motivation and secures resources. In addition to these intuitive effects, winning affects hormones, strengthens performance, and even increases the probability of future victories, and this phenomenon is called the Winner Effect. Although some data suggest that this pattern holds in women, men are ~3x more likely to be included in such studies, and the Winner Effect has never been studied in nonhuman females. Whereas we know that winning alters chemical signaling in the male brain to make competing more rewarding, neural correlates and consequences of winning have never been investigated in females. This noteworthy gap in the field is largely explained by low or absent aggression by female rodents. However, females aggressively defend their home territory during the postpartum period. Dr. Holschbach's research is beginning to fill this gap by studying the Winner Effect in postpartum female rats. This novel protocol will allow investigations into the effects of winning on the female brain to uncover overlapping and distinct neural responses to competition among the sexes. **BIO:** Allie Holschbach, PhD, is an Assistant Professor of Neuroscience in the Department of Psychology and Neuroscience at Nova Southeastern University. Dr. Holschbach attended the University of Wisconsin—Madison as an undergraduate, where she completed an Honors Thesis studying the relationship between testosterone, pair-bonding, and paternal behavior in California mice. She then earned PhD in Neuroscience at Michigan State University. Her dissertation work discovered novel neuroplasticity in the serotonin system of adult female rats before mating, during pregnancy, and during the postpartum period and examined the role the serotonergic dorsal raphe plays in postpartum social behaviors.



Speaker Name: **Wendi A. Irlbeck**

Degree/Certifications: MS, RDN, LD, CISSN

Talk Title: Practical Food and Nutrition Strategies for Fueling Today's Young Athletes

Talk Summary: Athletes need adequate daily energy to fuel their bodies for their sport, reach growth potential, and reduce the risk of injuries. Today's young athletes struggle to meet their daily energy needs due to schedules, restrictive diets and misinformation regarding food and supplementation. This talk will provide practical tools on how to help young athletes integrate both food and supplementation to overcome barriers and effectively meet nutrient needs to gain muscle, improve strength, and reduce the risk of injury. You will also gain critical talking points when communicating with parents, coaches, and healthcare providers on the efficacy, benefits, and safety for supplementing with creatine monohydrate. **BIO:** Wendi Irlbeck, MS, RDN, LD, CISSN is a registered dietitian nutritionist, health & fitness coach, writer, speaker, and former college and physique athlete. Wendi utilizes evidence-based science to create nutrition programs for athletes to optimize performance, minimize health risks, and enhance recovery from training while focusing on injury prevention. Wendi partners with parents, sports performance staff, special needs and recreational athletes and organizations to eat and fuel for success. Wendi specializes in sports nutrition serving elite youth athletes as well as collegiate and recreational athletes teaching them the importance of getting back to the basics. She also partners with corporate wellness organizations, general weight loss clients as well as those simply looking to live a healthier and more fit lifestyle! She earned both her B.S. and M.S. at the University of Wisconsin-Stout. Prior to starting her own private practice, she spent time working in corporate wellness, at the University of Florida, and for the dairy council as a sports dietitian. Wendi is based in Nashville, Tennessee but provides onsite and international online coaching and speaking services. You can reach her at www.nutritionwithwendi.com and on social media @nutrition_with_wendi.



Speaker Name: **Andrew M Jones**

Degree/Certifications: PhD FACSM FBASES FECSS FTPS

Talk Title: The beet goes on: new discoveries in dietary nitrate and exercise performance

Talk Summary: Dietary inorganic nitrate, which is found predominantly in green leafy vegetables, can be processed in the human body to form nitrite, a precursor to the physiological signaling molecule, nitric oxide (NO).

Supplementation of dietary nitrate, normally via the consumption of beetroot juice, has been shown to result in physiological effects including a reduction in resting blood pressure, improved skeletal muscle efficiency and contractility, and enhanced exercise performance. This talk will outline what we presently know, and don't know, about dietary nitrate, its mechanisms of action, and its relationship to health and performance. **BIO:** Andy Jones PhD is Professor of Applied Physiology and Assistant Deputy Vice-Chancellor at the University of Exeter, UK. Prof Jones conducts research in the following areas: 1) muscle oxidative metabolism; 2) causes of exercise-related fatigue; 3) kinetics of pulmonary gas exchange; and 4) sports performance physiology and nutrition. Prof Jones has published >350 peer-reviewed scientific articles and his work has received >34K citations.



Speaker Name: **Jackie Kaminski**

Degree/Certifications: MS, RDN/LDN, CISSN, CNC

Talk Title: Nutritional Considerations for Female Fighters During Fight Week

Talk Summary: While fight sports are slowly gaining health professionals to develop protocols to reduce the dangers of cutting weight, much more research and attention to weight cutting practices is needed especially in regard to female athletes. Currently, very minimal differences exist in the weight cutting practices between female and male athletes in various fighting disciplines. At this point in time, we have been able to note substantial physical and physiological differences between males and females, namely the female menstrual cycle. There have been many reports of female athletes missing weight due to the onset of their period. So, shouldn't weight cutting protocols be adjusted to account for extra weight gain that commonly accompanies changes in hormone profiles throughout the month? This presentation will summarize several case studies that implement various acute weight loss tactics in female athletes in the later luteal phase of their cycle to shed light on why or if female combat athletes should take a different approach to cutting weight compared to their male counterparts. **BIO:** Jackie Kaminski is a registered and licensed dietician with a Masters of Science in Exercise Physiology & Sports Nutrition following a Bachelor's of Science in Dietetics from Florida State University. In addition, Jackie honed her knowledge obtaining a specialized certification in sports nutrition from the International Society of Sports Nutrition (ISSN), an organization Jackie has been heavily involved in since starting her professional career, and is also a master level nutrition instructor for the National Society of Sports Medicine (NASM).



Speaker Name: **Katie Kennedy**

Degree/Certifications: BS

Talk Title: Sex Differences in Skeletal Muscle Fatiguability

Talk Summary: While skeletal muscle fatigue is a complex and task-dependent phenomenon, it is widely accepted that females display greater fatigue resistance. However, part of fatigue's complexity resides in its task dependency. The specific muscle, type of contraction, and intensity of the task dictate the amount and cause of experienced fatigue. Advancing our understanding of the mechanisms underlying fatigue is crucial to proper exercise prescription, particularly for understudied populations such as females. This talk will discuss recent findings in fatigue physiology as well as the practical applications and future directions of research regarding sex-differences in fatiguability and exercise prescription. **BIO:** Katie G. Kennedy is a current Masters student at the University of South Alabama working under the direction of Dr. Ryan Colquhoun. Her thesis focuses on sex-differences in neuromuscular outcomes following fatiguing exercise of the quadriceps. Katie received her B.A. in Exercise and Sport Science from UNC-Chapel Hill in 2020. In the fall, she will begin her PhD in Exercise Physiology at Texas Tech University under the mentorship of Dr. Jacob Mota



Speaker Name: **Chad M. Kerksick**

Degree/Certifications: PhD, Exercise, Nutrition, and Preventive Health (Baylor University), Certified Strength and Conditioning Specialist (CSCS), Certified International Society of Sports Nutrition (CISSN)

Talk Title: The Unique Ways in Which Bacillus Coagulans GBI-30, 6086 (BC30) May Aid in Health, Recovery, and Exercise Adaptations

Talk Summary: Probiotics continue to increase in popularity and research has identified many ways in which probiotics can support health. While it is clearly established that probiotic efficacy is largely species and strain dependent, research involving bacillus coagulans GBI-30, 6086 (BC30) has continued to expand. In this respect, several studies have highlighted the potential for BC30 to improve recovery from damaging resistance exercise. In addition, other research involving BC30 has pointed to its ability to heighten amino acid uptake into the bloodstream when combined with various protein sources in young and older populations. This presentation will outline key background considerations for BC30 and summarize the recent findings before offering additional insight and recommendations regarding future research and other applications. **BIO:** Dr. Kerksick is currently an Associate Professor of Exercise Science and Assistant Dean for Research and Innovation in the College of Science, Technology, and Health at

Lindenwood University and serves as the Director of the Exercise and Performance Nutrition Laboratory. He is currently the co-VP of the ISSN.

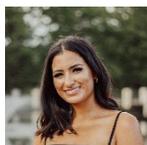


Speaker Name: **Lonnie Lowery**

Degree/Certifications: MA, MS, PhD, RD, LD, FISSN is a Sr. Research Scientist, Adult Nutrition Science R&D, Scientific and Medical Affairs at Abbott Nutrition, Columbus, Ohio, USA.

Talk Title: Polyphenols as Potential Ergogenic and Body Composition Modulators

Talk Summary: There are food components beyond macro- and micronutrients. Not all are essential in the classic sense but nonetheless have biological activity. Polyphenols include a class of compounds including flavonoids, phenolic acids, stilbenes, and lignans. They have been studied for their physiologic impacts, ranging from antioxidant and immuno-modulatory properties to enzymatic, endocrine, and neural effects. Some have a regulatory history as pharmaceuticals and others have been used with varying degrees of efficacy in nutrition products. Attendees will leave this presentation being able to define polyphenols and to list select examples that have potential in nutrition formulae. **BIO:** MA, MS, PhD, RD, LD, FISSN is a Sr. Research Scientist, Adult Nutrition Science R&D, Scientific and Medical Affairs at Abbott Nutrition, Columbus, Ohio, USA.



Speaker Name: **Veronica Mekhail**

Degree/Certifications: MS, CISSN

Talk Title: The Effects of Pre-Workout Supplementation on Physical and Mental Performance

Talk Summary: Multi-ingredient pre-workout supplements (MIPS) have been shown to affect exercise performance.

Specifically, nitrous oxide related supplements such as those containing beet products enhance sports performance.

Additionally, caffeine consumption through energy drinks have shown to improve time to exhaustion during endurance events, improved measures on energy, focus, fatigue, and increased energy expenditure in several studies. This presentation will summarize the effects of an acute consumption of a multi-ingredient pre-workout supplement on different measures of cognitive and physical performance. **BIO:** Veronica is currently a graduate student at Nova Southeastern University working under the mentorship of Jose Antonio PhD.



Speaker Name: **Jonathan Mike**

Degree/Certifications: PhD, CSCS*D, NSCA-CPT*D, USAW, NKT-2,

Talk Title: I like Big Recovery and I Cannot Lie; Sports Supplements You Can't Deny

Talk Summary: Sports Supplements are high utilized in effort to gain maximum performance. However, recovery is of equal importance as one should recover twice as hard when training hard. Strategies to enhance recovery should be implemented to compensate from various training stimuli, including the science, application, and education of sports supplements. Since recovery-related activities often take place outside the formal training setting, the evaluation of individual differences is often difficult for coaches and may even result in a mismatch between coaches' and athletes' perception of recovery. While there is a whole host of supplements to use, this presentation will cover the science, efficacy and application of which supplements provide the most bang for your buck when training to recover optimally. We dive into the science and dispel fact from fiction for all trainers, coaches, athletes, and sports nutrition professionals. **BIO:** PhD, CSCS*D, NSCA-CPT*D, USAW, NKT-2, currently teaches in the exercise science and sports performance program at Grand Canyon University in Phoenix, AZ. He has worked as a strength and conditioning coach and has contributed to dozens of online fitness, strength, and consumer outlets in the country.



Speaker Name: **Akihito Nishimura**

Degree/Certifications: Bachelor of Science in Agriculture, March 2002, Osaka Prefecture University, Osaka Japan; Master of Science in Biology, March 2004, Osaka University, Osaka, Japan

Talk Title: Citicoline: A potent brain-health nutrient and nootropic

Talk Summary: CDP-choline, or citicoline, is an intermediate in the synthesis of phospholipids, which are essential components in the assembly and repair of cell and mitochondrial membranes. Citicoline enhances brain function mainly via synthesis of phospholipids, a key component of brain cell membranes, and produce acetylcholine, a nerve system activator. The beneficial effects of citicoline have been studied in a broad range of healthy subjects from adolescents to elderly adults. You will learn more about the role of citicoline in nutritional support for attention, memory, focus and brain energy for athletes and gamers alike and the valuable benefits of this cognitive health ingredient for the evolution of your mind. **BIO:** Akihito Nishimura is a Technical Manager of Kyowa Hakko USA. His work focuses on establishing scientific information of Kyowa health ingredients and introduce in the BtoB segment. He was dispatched from Kyowa Hakko Bio, parent company of KHUS located in Tokyo and worked to develop the business and marketing strategy based on new and emerging science. He also used to work for Kyowa manufacturing site and has a knowledge of fermentation and the cutting-edge Kyowa technology.



Speaker Name: **CPT Brandon Roberts**

Degree/Certifications: PhD, MBA, CSCS*D

Talk Title: The Dose-Response Effects of Arachidonic Acid on Primary Human Skeletal Myoblasts

Talk Summary: The cellular inflammatory response, mediated by arachidonic acid (AA), is a highly regulated process that plays a role in muscle growth and repair. The purpose of this study was to determine if AA supplementation has ergogenic or detrimental effects on human muscle cells at various doses. Our data demonstrates that high doses of AA inhibit myoblast proliferation, and that high and moderate concentrations of AA inhibit myotube fusion and hypertrophy. These results are opposite of findings in C2C12 cells but support human data that AA supplementation does not improve muscle hypertrophy. **BIO:** Brandon Roberts 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 uses a combination of cell culture, rodent models, and human clinical trials to study how muscle adapts to exercise, drugs, and injury.



Speaker Name: **Mona Rosene**

Degree/Certifications: MS, RD

Talk Title: NAD, Muscle and Athletic Performance: Current Research & Future Needs

Talk Summary: Cellular dysfunction occurs from exposure to various physiological and metabolic stressors causing subsequent epigenetic changes. Cells become more resilient and overall health improves when they can better respond to stressors. A growing body of published research suggests the level of a critical coenzyme called nicotinamide adenine dinucleotide (NAD+) is an important factor in cellular resilience and age-related decline. NAD+ plays an essential role in maintaining healthy mitochondrial and cellular function, ATP production, activating DNA repair mechanisms, and helps the cell resist the effects of metabolic stress. Research shows NAD+ decreases with age and exposure to metabolic stress, such as overtraining. A reduction in NAD+ could impact muscle health, fitness goals, and quality of life. Attendees will leave with an understanding of the current research related to NAD+ and muscle health, NAD+ repletion through lifestyle methods and NAD+ precursors, and future research needs. **BIO:** Mona Rosene, MS, RD has spent more than two decades working in the nutrition industry including the food and beverage, and supplement categories. She holds a Bachelor's degree in exercise physiology and Master's degree in nutrition. She currently serves as the Director of Scientific Affairs at ChromaDex Corp. Prior to joining ChromaDex, Mona served as the Nutrition Scientist and Scientific Affairs Manager at Danone (formerly WhiteWave Foods) where she led claim substantiation for a large portfolio of plant-based and dairy products and executed external engagement strategies to build awareness and credibility for innovation and legacy brands. Mona is a member of the Academy of Nutrition and Dietetics, the American Society for Nutrition, and Dietitians in Functional Medicine.



Speaker Name: **Chester Sokolowski**

Degree/Certifications: PhD(c), CISSN

Talk Title: The Relationship Among Binge Drinking, Musculoskeletal Composition, Physical Performance, and Metabolic Health in Young Adult Females

Talk Summary: It is well established that resistance training can positively impact musculoskeletal composition, physical performance, and metabolic health. On the contrary, binge drinking can have harmful effects on musculoskeletal composition, physical performance, and metabolic health. It is currently unknown how consistent resistance training and chronic binge drinking alter the aforementioned traits in young adult females. Relative to males, females may be at an elevated risk of the deleterious effects binge drinking can have on the muscles and bones due to their smaller body size and less quantity of the protective hormone testosterone. The similarities and differences in body composition, bone integrity, physical performance, and insulin sensitivity in resistance trained young adult females who abstain from alcohol and resistance trained young adult females who frequently binge drink will be discussed. These data can help female athletes better understand how habitual binge drinking is impacting their fitness and health. **BIO:** Chester is a PhD candidate in the Department of Nutrition and Integrative Physiology at Florida State University under the advisory of Dr. Michael Ormsbee and Dr. Jeong-Su Kim. He currently works as a graduate teaching and research assistant and has accepted a post-doc position at Florida State University. Chester has been nominated for an outstanding teaching award through The Program for Instructional Excellence at Florida State and has taught 8 courses during his graduate student career at Florida State and The University of Georgia. Chester's research has focused on resistance training, nutrient quality, nutrient timing, protein supplementation, and ergolytics. His passion is resistance training. His goals are to highlight the various benefits resistance training has over the lifespan and discover the best practices to optimize resistance training-induced adaptations.



Speaker Name: **Yala Stevens**

Degree/Certifications: PhD

Talk Title: The Effects of Citrus Flavonoids on Exercise Performance: an RCT

Talk Summary: Nutritional supplementation is widely used by athletes and recreational exercisers to improve their sport performance. In recent years, the use of supplements containing compounds naturally present in plants such as flavonoids have become

of great interest. Previous studies have demonstrated that supplementation with flavonoids from citrus fruits may be an effective strategy to improve exercise performance in male athletes. Repeated intake of 500 mg of a specific citrus fruit extract (CFE) improved aerobic exercise performance during a ten-minute bicycle trial on an ergometer. An increased absolute power output and a decreased oxygen consumption/power ratio were observed after CFE treatment. Furthermore, acute intake of a single dose of 500 mg CFE resulted in an increase in average power, maximum speed, and total energy during the best sprint in an anaerobic cycling performance test. However, no conclusive research had been performed to investigate the effect of chronic CFE supplementation on high-intensity exercise performance under anaerobic conditions and whether such effects may also be achieved by lower daily supplementation doses. Therefore, we performed a clinical study in moderately trained athletes to assess whether CFE supplementation in daily dosages of 400 and 500 mg can improve anaerobic exercise capacity. **BIO:** Yala Stevens is currently working as Chief Scientific Officer at BioActor BV. Together with scientists from the University of Maastricht (the Netherlands) she is involved in various research projects investigating the effects of dietary supplements using randomized controlled trials and different mechanistic models.



Speaker Name: Charles Hu Stull

Degree/Certifications: MS, RDN

Talk Title: Key Considerations in The Weight Making Process for Combat Athletes

Talk Summary: To shed light on the areas of influence nutrition professionals have in sustainable weight making practices that safeguard athlete health and safety whilst maximizing athletic performance. Share insights and context with regards to weigh in windows, non-essential body mass manipulation and post weigh in tactics. Share the UFCPI's Emergency Action Plan and Risk Factors we screen for in the acute weight cut phase of fight week. Finally, share some ongoing and exciting collaborative opportunities between the UFCPI and ISSN as we continue to navigate the intricacies of combat sports athletes. **BIO:** Charles Hu Stull joined Ultimate Fighting Championship (UFC) Performance Institute as the Performance Nutrition Manager in 2018. Prior to working at the UFCPI, Charles Stull was the sports dietitian for the UCLA Athletics program. Over the past 5 years as a sports dietitian Charles has worked with combat sports athletes (MMA, Muay Thai, Boxing) and athletes in professional organizations such as the NFL, LPGA, and UFC, in addition to Olympic athletes. Charles was also a DI swimmer at American University and carries a seasoned Muay Thai career with over 15 years of competitive experience.



Speaker Name: Mark ET Willems

Degree/Certifications: PhD, FECSS

Talk Title: Anthocyanin-rich supplementation: Potential for Sport and Exercise Nutrition

Talk Summary: Dark-coloured berries have abundant presence of the polyphenol anthocyanin. Anthocyanins provide health benefits but are gaining recognition as nutritional ergogenic aids. Our work with New Zealand blackcurrant powder and extract has provided meaningful observations with application for athletes and the general population. Exercise-induced substrate oxidation, exercise performance of repeated high-intensity running and cycling time-trial performance, cardiovascular function and skin emission of volatile organic compounds were altered by intake of New Zealand blackcurrant. My talk will address our research findings and experience for obtaining the applied in-vivo effects by intake of anthocyanin-rich New Zealand blackcurrant, the issue of individual responses, and the emerging general potential of anthocyanins for sport and exercise nutrition. It will also provide a reflection to inform future work to enhance our mechanistic understanding of meaningful in-vivo exercise-induced effects by anthocyanin intake and the potential for impact for athletes and the general population. Future work with repeated intake of known amount and type of anthocyanins, gut microbiota handling of anthocyanins, and coinciding measurements of plasma anthocyanin and anthocyanin-derived metabolite availability and cell function will be required to inform our understanding for the unique potential of anthocyanins as a nutritional ergogenic aid for athletes and physically active individuals. **BIO:** Since 2003, I have been working at the University of Chichester (UK). My current research interest is focused on New Zealand blackcurrant and Matcha green tea with application for sport, exercise, and health. I am on the advisory editorial board of the European Journal of Applied Physiology, and the editorial board of the European Journal of Sport Science, and the Journal of Functional Morphology and Kinesiology. I am associate editor for the Sport and Exercise Nutrition section of Frontiers in Sport and Active Living and Frontiers in Nutrition. I have membership with the European College of Sports Science (Fellow).



Speaker Name: Helena Yardley

Degree/Certifications: PhD

Talk Title: The Science of CBD

Talk Summary: Cannabidiol (CBD) is a non-intoxicating phytocannabinoid that has been scientifically studied for decades and has potential for wide-ranging health benefits. After the 2018 Farm Bill removed hemp, hemp extracts, and hemp products, including CBD, from the U.S. Controlled Substances Act, CBD-based products quickly proliferated on the US marketplace. This seminar will provide an overview of the science behind CBD, including its mechanisms of action, pharmacokinetics, and safety. It will also delve into the effects of CBD on sports performance and recovery, including effects on acute pain and soreness, inflammation, sleep, and mood. **BIO:** Dr. Yardley has a dual Ph.D. in Neuroscience and Integrative Physiology from the University of Colorado Boulder and is currently the Senior Scientist Manager at Canopy Growth Corporation. She has

been involved in clinical research on oral and topical CBD since 2012. Prior to joining Canopy, she founded and held leadership positions in organizations devoted to enhancing clinical research and knowledge on the safety and therapeutic uses of CBD. When not researching the clinical effects of CBD, she manages her farm where she raises alpacas, emus, bees, and chickens, and enjoys yoga, long-distance bike-packing, and exploring the mountains around the Boulder area.



Speaker Name: **Annette Zapp**

Degree/Certifications: MA, CSCS, TSAC-F, CISSN, CNS

Talk Title: Serving those who Serve on the Thin Red Line

Talk Summary: Fitness and performance experts have exerted strong pressure in the past decade to classify and train firefighters as industrial or tactical athletes. Although technically true, most firefighters are the polar opposite of athletes. Recruited from the general population, firefighters share all of those typical characteristics plus additional health complications associated with chronic sleep deprivation and repeated trauma. Morbid obesity, affliction with first world diseases, and mental health complications are also commonly encountered in firefighters.

In addition to exploring the universal characteristics of this community, the talk will discuss the ways that health and wellness professionals can best serve firefighters, as well as proven strategies for building trust and buy-in while working in this closely-knit group with an inherent distaste for outsiders. **BIO:** A former adjunct faculty member at the University of Denver in the graduate program for Sport Coaching, Zapp is a recognized industry leader in the field of firefighter health and wellness. She is an 18-year fire service veteran holding the rank of Lieutenant and recently served on an Illinois Senate task force aimed at mitigating first responder suicide.

ROUNDTABLES

Speaker Names: **Arny Ferrando PhD FISSN, Marcas Bamman, PhD, Tim Ziegenfuss PhD FISSN, Jeff Stout PhD FISSN**

Roundtable Topic: **Grant and Research Funding Luncheon**

Talk Summary: This luncheon represents an open forum where investigators can ask question/advice as to how best to achieve federal funding. Presenters will focus on NIH and DoD submissions, their requirements, and the primary differences in funding agency priority. In particular, emphasis will be placed upon determining the significance of an idea to the agency and to how best present your ideas. In addition, information on acquiring private funding will also be addressed inasmuch as the vast majority of sports nutrition research is not federally funded.



Speaker Names: **Shawn M. Arent PhD FISSN, FACSM, FNAK, Arny Ferrando PHD, FISSN, Marcas Bamman PhD, David Church PhD**

Roundtable Topic: **Post-Doc - What's it all about?** Moderated by: Allie Holschbach PhD

Talk Summary: This luncheon will focus on articulating the rationale and reason for seeking a post-doctoral fellowship. Several senior investigators will opine as to their experiences and mentorship style of post-doctoral fellows. Further, discussion will be entertained as to the advantages of a fellowship after graduation.



Note: if you need a certificate of attendance for CEU purposes, please email Anya Ellerbroek MPH CISSN at anyaeller@gmail.com