DAY ONE MON, 15TH DEC 2025

G27- ALL PLENARY SESSIONS	G26- ALL PLENARY OVERSPILL
G27 - SCIENCE SESSIONS	G36 - APPLIED

PLENARY SYMPOSIUM - Creatine Supplementation and the Brain Next Session - Chair: Prof Ron Maughan NutritionX	
9.00-11.00	Measuring brain creatine and its implications for supplementation to improve health and performance - Prof Craig Sale (UK)
	Creatine, cognitive function and brain injury - Dr Eric Rawson (USA)

11.00-11.30 Tea/Coffee and Poster Presentations

Science Theme - Neglected Nutrients Chair: Dr Mark Hearris GetPRO PROFESSIONAL	Applied Theme - Chair: Dr Anu Koivisto-Mork SPORTGENIX
11.30-13.00 Iodine - Dr Enette Larson-Meyer (USA) Magnesium - Prof Louise Dye (UK) Vitamin K - Dr Dan Owens (UK)	**11.30-12.10** Technology, Artificial Intelligence and the future of sports nutrition. - Prof Asker Jeukendrup (UK)
	12.10-12.50 Running an Elite Sports Nutrition Service: Challenges and Opportunities - Wendy Martinson (UK)

12.50-14.00 Lunch and Poster Presentations

Science Theme Chair: Alan Smeets	Applied Theme - Chair: Wendy Martinson NURITAS See nature differently
14.00-14.45 Dietary strategies to mitigate muscle disuse atrophy Prof Luc van Loon (Netherlands)	**14.00-14.45** Nutrition to Support the Youth Athlete - Dr Enette Larson-Meyer (USA)
14.45-15.30 Fasting and exercise: the benefits and the drawbacks Prof Javi Gonzalez (UK)	**14.45-15.30** Nutritional support for the winter sports athlete - Dr Ana Karin Kozjek Schwietert (Slovenia)

15.30-16.00 Tea/Coffee and Poster Presentations

PLENARY LECTURE - Chair: Prof Ron Maughan	
16.00-17.00	Lessons from a Life in Science - Prof Luc van Loon (Netherlands)

19.00-21.30 WELCOME RECEPTION - see page 24 for full details

DAY 01

MONDAY, 15th DECEMBER 2025

9.00 – 11.00 - Plenary Symposium
Creatine Supplementation and the Brain
Chair: Prof Ron Maughan

09.00 - 11.00

Measuring brain creatine and its implications for supplementation to improve health and performance

Prof Craig Sale

Craig is an experienced research leader, responsible for coordinating research activity relating to exercise and nutrition interventions in the Institute of Sport at Manchester Metropolitan University. In his previous role he was responsible for coordinating the research activity of staff across Nottingham Trent University as the Co-Lead of the NTU Health & Wellbeing Strategic Research Theme and of over 50 staff in the School of Science and Technology in his role as the Director of the Sport, Health and Performance Enhancement (SHAPE) Research Centre. He was also the REF Unit of Assessment Coordinator for UoA C24 since 2009, wherein he oversaw a significant upturn in the Units REF related performance and its sector position. Prior to NTU, Craig was a Senior Scientist and then Deputy Capability Group Leader of the Human Protection and Performance Enhancement Group at QinetiQ Ltd, where he was partly responsible for the activity of around 20-30 scientists conducting defence and security work for the Ministry of Defence and other commercial entities. Among other things, Craig is a Fellow of the American College of Sports Medicine (ACSM) and a Section Editor for the European Journal of Sports Sciences.

ABSTRACT

Advancing our ability to measure and modulate brain creatine levels represents a promising avenue for enhancing human resilience, cognition, and neurological health across diverse contexts, from athletic performance to ageing and disease prevention. The evidence has, however, been overstated in some arenas and methods matter.

Creatine is a key metabolite in cellular energy metabolism, acting as a phosphate donor for rapid regeneration of ATP through the creatine kinase system. While its ergogenic benefits in skeletal muscle are well established, growing evidence suggests that creatine might also play an important role in brain bioenergetics, neuroprotection, and cognitive performance. Understanding how creatine concentrations in the human brain can be accurately measured and how these levels respond to dietary supplementation is central to advancing basic neuroscience and clinical nutrition.

Recent developments in magnetic resonance spectroscopy (MRS), particularly proton (1H-MRS) and phosphorus (31P-MRS), have enabled non-invasive quantification of creatine and phosphorylcreatine in vivo. These methods provide region-specific insights into cerebral energy metabolism, with reported total creatine concentrations ranging from 5–10 mmol·kgww-1 , depending upon brain region, physiological state, and processing pipeline. Technical and biological sources of variability, such as voxel placement accuracy, tissue composition, relaxation effects, and interindividual differences in creatine transporter (SLC6A8) activity, however, pose challenges for precise and repeatable quantification. Advances in higher-field MRS and optimised acquisition protocols offer some promise in overcoming these limitations, improving spatial and spectral resolution, increasing signal-to-noise ratio, and standardising voxel repositioning.

Only a small body of evidence exists to suggest that creatine supplementation might provide a strategy to increase brain creatine content and, as such, support brain energetics under metabolically demanding conditions. Emerging studies have suggested that oral creatine supplementation (typically 5–20 g·day-1) can modestly elevate brain creatine levels, though the magnitude and consistency vary widely. Factors such as baseline brain creatine content, dietary intake, sex, age, and SLC6A8 efficiency might all influence the degree of cerebral uptake. In healthy adults, brain creatine increases of 3– 10% have been reported after several weeks of supplementation, while more substantial elevations are seen in individuals with creatine deficiency syndromes or under metabolic stress. These biochemical changes have been associated with improvements in shortterm memory, reasoning, and mental fatigue, particularly under conditions of sleep deprivation, hypoxia, or caloric restriction, contexts where brain energy availability becomes limiting.

Beyond cognitive performance, brain creatine augmentation has shown promise as a therapeutic strategy in neurological and psychiatric disorders characterised by impaired bioenergetics, including traumatic brain injury, depression, and neurodegenerative diseases. The evidence base remains heterogeneous, however, and dose-response relationships are yet to be determined. Indeed, optimal supplementation regimens are unknown and heterogeneity across cohort demographics, supplementation regimens, and cognitive assessments limits translational potential. Standardising measurement protocols and combining multi-nuclear MRS with complementary biomarkers, such as cerebral blood flow or mitochondrial function, may help clarify mechanistic pathways and individual responsiveness.

This presentation will summarise available methodologies for quantifying brain creatine, highlight key findings from supplementation studies, and introduce the translational implications of creatine supplementation to optimise brain health and performance.

Creatine, cognitive function and brain injury

09.00 - 11.00

Dr Eric Rawson

Eric S. Rawson is Chair and Professor of Health, Nutrition, and Exercise Science at Messiah University in Mechanicsburg Pennsylvania. Dr. Rawson received his Ph.D. from the University of Massachusetts, Amherst where he studied under the direction of Dr. Priscilla Clarkson. Over the past two decades, Dr. Rawson's research has focused on the interactions between nutrition and skeletal muscle. In particular, Dr. Rawson has studied the effects of the dietary supplement creatine on muscle and brain function. Dr. Rawson has been an active member in the American College of Sports Medicine (ACSM) since 1996, has served on the ACSM Board of Trustees, as Chair of the ACSM Annual Meeting Program Committee, as Chair of the ACSM National Chapter Nutrition Interest Group, and is a past–president of the Mid-Atlantic ACSM regional chapter. Dr. Rawson has delivered about 200 professional presentations, is co-editor of the textNutrition for Elite Athletes, co-author of Nutrition for Health Fitness and Sport, and has authored/co-authored numerous articles and book chapters. His research has been funded by the National Institutes of Health and various foundations.

ABSTRACT

The effects of creatine supplementation on skeletal muscle, including: increased muscle creatine, improved performance, increased strength, and enhanced fatigue resistance, are well described. New research supports that creatine supplementation can also increase brain creatine and subsequently improve cognitive processing. Further, preliminary data supports that creatine supplementation plays a role in reducing the severity of and/or enhancing recovery from a traumatic brain injury (i.e. concussion). Finally, new data highlights the deleterious effects of a low creatine diet on brain health. This session will review the effects of dietary and supplemental creatine ingestion on cognitive processing, brain injury, and brain health.

DAY 01

MONDAY, 15th DECEMBER 2025

11.30 - 12.50
Applied Theme
Chair: Dr Anu Koivisto-Mork

11.30 - 12.10 Technology, Artificial Intelligence and the future of sports nutrition.

Prof Asker Jeukendrup

Professor Asker Jeukendrup is one of the world's leading sports nutritionists and exercise physiologist who spent most of his career as a professor at the University of Birmingham (UK) (sports sciences). He is currently director of a performance consulting business "Mysportscience", as well as a professor at Loughborough University. Asker is Performance Manager Nutrition for the Dutch Olympic team and the Red Bull Athlete Performance Center. He was head performance Nutrition for the Visma Lease a Bike Pro cycling team, who won all 3 grand Tours in 2023 recently became the Director of Performance Strategy for the Red Bull BORA Hansgrohe world tour cycling team as well as head of nutrition. He teaches the FC Barcelona Advanced Sports Nutrition course and maintains a website that aims to help separate sense and non-sense in sport science and sport nutrition (www.mysportscience.com). He also has an online education platform www.mysportscienceacademy.com.

In his academic career Dr Jeukendrup authored 10 books and over 250 research papers and book chapters. His textbook of Sport Nutrition is one of the best-selling textbooks on this topic with a new edition in June 2024. In addition to his academic work, he worked with Olympic and World champions, Tour de France cyclists, Champions league football teams, and other elite athletes. His mission is to use science to help athletes achieve their goals.

ABSTRACT

Technology and artificial intelligence are reshaping sports nutrition at a remarkable pace. Where nutrition support once relied solely on practitioner expertise, periodic testing, and manual dietary analysis, today's high-performance environments increasingly integrate digital monitoring, wearable technology, and AI-assisted decision support. These tools allow nutritionists to analyse far larger datasets, from training load and GPS metrics to sleep, biomarkers, nutrition logs, and gastrointestinal tolerance — enabling more precise and individually tailored strategies than ever before.

AI unlocks several unique advantages. Machine learning can identify patterns humans often miss, such as links between training stress, energy intake, and risk of illness or RED-S. Automated fueling and hydration algorithms generate real-time recommendations based on pace, temperature, body size, sweat rate, and carbohydrate tolerance. Large language models support practitioners by synthesising research, creating menu plans, translating science for performance staff, and reducing administrative workload. Ultimately, AI doesn't replace practitioners — it gives them more time for what matters most: working closely with athletes.

However, the limitations are equally important. AI is only as good as the data it learns from: poor-quality input creates misleading output. Algorithms lack context around psychology, readiness to change, interpersonal dynamics, and lived experience — areas where the human practitioner is irreplaceable. There is also the risk of over-reliance: when athletes follow automated recommendations without understanding the "why", confidence and autonomy can erode. Ethical concerns around data privacy, athlete ownership of information, and commercial exploitation must also be taken seriously.

The future of sports nutrition will not be human versus AI, but humans empowered by AI. The winners will be practitioners and teams who integrate technology to enhance expertise — not replace it — combining data-driven precision with empathy, communication, and real-world coaching.

Running an Elite Sports Nutrition Service: Challenges and Opportunities

12.10 - 12.50

Wendy Martinson

Wendy has over 23 years' experience working in high performance sport. She has worked as Team GB Performance Nutritionist at 6summer Olympic games and most recently was the Performance Nutrition Lead for Team GB at the Paris 2024 Olympic games.

Throughout her career, Wendy has worked with a wide range of organisations including the NHS, British Gymnastics, GB Hockey, Great Britain Rowing Team, UKSI Performance Rehabilitation Centre, British Olympic Association, English National Ballet School, West Ham united FC and the England Football Squad.

Wendy currently works for the UK Sports Institute as Head of Performance Nutrition.

A graduate from Kings College London University, Wendy is a Registered Dietitian with the Health and Care Professions Council. She has a Masters in Sport and Exercise Nutrition and the International Olympic Committee Diploma in Sports Nutrition. Wendy is a Practitioner registrant and Board member of the Sport and Exercise Nutrition Register.

In the New Year 2010 Honours list Wendy was awarded an OBE for services to sport and to nutrition.

ABSTRACT

The delivery of nutrition services in high performance sport is a dynamic and rapidly evolving field, central to enhancing athlete health, well-being, and performance. Operating within a multi-sport organisation presents a unique set of challenges and opportunities that require strategic planning, adaptability, and strong cross disciplinary collaboration.

A key challenge lies in meeting the diverse nutritional needs of athletes across different sports, each with distinct physiological demands, training loads, and competition schedules. The complexity of delivery can be further compounded by medical considerations as well as cultural background and athlete preferences. The integration of nutrition services into multidisciplinary performance teams requires clear communication pathways and mutual respect and understanding for each discipline's expertise. This collaborative approach is essential for delivering cohesive support to athletes.

Logistical challenges include managing nutrition support during travel, ensuring food safety and quality at remote venues, and coordinating with catering services to provide appropriate menu options. Additionally, resource constraints, such as limited staffing and budget, can impact the ability to deliver individualised support and maintain service consistency across all sports.

Access to a well-structured learning and development programme is vital for practitioners. It enables ongoing growth in technical, professional, and leadership capabilities, while enhancing problem-solving skills and the ability to generate performance-focused solutions. Practitioners need access to a network of expertise and regular clinical supervision to address the complex medical issues that can arise for individual athletes. This can be challenging to deliver and requires a well-defined infrastructure to achieve.

Opportunities for cross-disciplinary knowledge sharing and collaboration within strong communities of practice can drive innovation and continuous improvement across the system. Implementing effective operational strategies such as standard operating procedures, evidence-based frameworks, and robust governance structures helps ensure quality, compliance, and consistency. Embracing technology further enhances service delivery and efficiency.

This presentation will share insights and experiences from operating a performance nutrition service within the UK Sports Institute (UKSI), currently the UK's largest provider of world-class science, medicine, technology, and engineering services to Olympic and Paralympic sports.

DAY 01

MONDAY, 15th DECEMBER 2025

11.30 - 13.00
Science Theme
Chair: Dr Mark Hearris

11.30 - 13.00

Neglected Nutrients: Iodine

Dr Enette Larson-Meyer

Dr Enette Larson-Meyer is currently a Professor in the Department of Human Nutrition, Foods, and Exercise at Virginia Tech, where she directs the Nutrition and Exercise Metabolism Lab. Her research focuses on how nutrition influences the health and performance of active individuals at all stages of the lifecycle and at all levels of performance. Recent research interests include healthy weight gain in athletes and military personnel, and the importance of iodine and vitamin D status in exercise performance, disease prevention and general wellness. Enette has authored over 100 scientific articles, is the author of "Plant-Based Sports Nutrition. Expert Fueling Strategies for Training, Recovery, and Performance" (Human Kinetics, 2020) and has served on several International Olympic Committee consensus panels. She serves as an Associate Editor for Medicine & Science in Sports & Exercise and the Science and Medicine of Football. Earlier in her career, Enette completed an internship at the U.S. Olympic Training Center (Colorado Springs) and served as a collegiate sports dietitian. Her personal interests include trail running, flat water kayaking and Irish-Step dancing. She is the proud mother of three college students, two of whom play/ played D2 soccer at U.S. Universities.

ABSTRACT

Iodine is an essential trace mineral required for the synthesis of the thyroid hormones thyroxine (T4) and triiodothyronine (T3), which are involved in the regulation of metabolic rate, body temperature, growth and development. These hormones regulate many key biochemical reactions including carbohydrate and fat metabolism and protein synthesis. The UK Reference Nutrient Intake for iodine for non-pregnant adults is 140 µg/day, whereas the US Recommended Dietary Allowance is 150 µg/day. Intake close to the recommended intake values supports adequate thyroid hormone production whereas compromised intake or status can impair thyroid hormone production and result in fatigue, weight gain, impaired thermoregulation, reduced exercise tolerance and poor general or cognitive health. Although small amounts of iodine are found in most foods (3 to 75 µg/serving), iodine content varies widely depending on soil and water iodine content, agricultural practices and food processing. Key dietary sources include fish, shellfish, seaweed, dairy products, eggs, and iodized salt. While iodized salt programs are standard in the US and parts of Europe (e.g., Switzerland, Denmark, and the Netherlands), the UK does not have mandatory iodization, and intake in countries including Ireland, Norway and Italy may be particularly suboptimal. Dietary iodine is well-absorbed in the small intestines (typically following reduction to iodide) and is selectively concentrated by the thyroid gland in amounts required for adequate thyroid hormone synthesis. Excess iodine is excreted primarily through urine, but losses through sweating and fecal routes also occur.

This presentation will focus specifically on iodine as a forgotten nutrient in athletes. Athletes may be at elevated risk for poor iodine status due to sweat losses during prolonged or intense training (estimated to average ~37 µg iodine/L of sweat) or to consumption of energy restrictive diets, plantbased or dairy free diets, and preferences for non-iodized or gourmet salts. Moreover, reliance on processed foods, which typically use non-iodized sodium sources, further exacerbate risk. Conversely, certain athletes may be at risk for excess iodine intake due to dietary supplements use, high consumption of iodized food products or habitual seaweed consumption. Accordingly, a comprehensive nutritional assessment is essential for evaluating iodine status in athletes. The ABCDE model—encompassing Anthropometric, Biochemical, Clinical, Dietary, and Environmental factors—provides a structured framework for assessing iodine status and determining an appropriate intervention. Key components include A: current weight, weight history; B: 24-h urinary iodine concentration (UIC), 24-h total urinary iodine excretion (UIE), serum thyroid stimulating hormone; C: fatigue, temperature intolerance, thyroid size, medication use; D: iodine, iron, selenium and total energy intake; and E: iodized salt availability, personal beliefs. Within this context it is worth noting that iodine status is typically assessed by 24-h UIC with standard cut-offs set by the World Health Association but 24-h UIE may better account for urine concentration, volume and hydration status in athletes. Additionally, as little is published concerning the iodine status of athletic populations, this presentation will share preliminary data in several athletic groups to highlight the importance of both nutritional assessment and further research in this essential but often forgotten nutrient.

Neglected Nutrients: Magnesium

11.30 - 13.00

Prof Louise Dye

Louise is a Chartered Health Psychologist and Co-Director of the Institute for Sustainable Food at the University of Sheffield. Her research examines effects of nutrition on cognitive function, health and wellbeing across the lifecourse. During 30 years at the University of Leeds, she developed expertise in the design of both lab–based experimental studies and free living interventions. Her work on breakfast and cognition highlighted the importance of diet in children and underpinned the new government school breakfast policy. She sits on the food insecurity taskforce for Leeds City Council and has examined its implications for mental health. Louise is Co-Director of the SFI/DAERA/UKRI funded Co-Centre for Sustainable Food Systems and leads a work package on increasing dietary fibre intake in low-income consumers in the UKRI funded H3 project which explores how to encourage and sustain dietary behaviour change at individual, organisational and societal levels. She is Co-Director of the National Alternative Protein Innovation Knowledge Centre (NAPIC) where she leads the People pillar which aims to understand and improve consumer acceptance of alternative protein. Louise chaired the BBSRC Strategy Board for Biosciences for an Integrated Understanding of Health until 2024 and working group on Neuroscience and Mental Health

ABSTRACT

Magnesium's main function is to regulate biochemical reactions, acting as a cofactor for over 300 enzyme systems that are essential for energy production, nerve and muscle function, blood sugar and pressure regulation, and protein, DNA, and RNA synthesis. It also supports bone health and heart rhythm, and helps maintain normal cell and membrane function. Magnesium supplements are widely promoted in sport – based on suggestions that "magnesium is important for muscle contraction" or "magnesium prevents muscle cramps". However, there is not a great deal of conclusive evidence to support these assertions. Magnesium has however, been implicated in both acute and chronic stress and anxiety. This presentation will consider the evidence from animal and human studies for a beneficial effect of magnesium in conditions of acute stress and in chronic conditions such as anxiety and depression, alone and in combination with other bioactive ingredients. The relevance to athletes will also be considered.

DAY 01

MONDAY, 15th DECEMBER 2025

11.30 – 13.00
Science Theme
Chair: Dr Mark Hearris

11.30 - 13.00

Neglected Nutrients: Vitamin K

Dr Dan Owens

Dr. Daniel Owens is an Associate Professor (Reader) at Liverpool John Moores University with extensive expertise in nutrition and metabolism research. With over 45 peer-reviewed publications in leading sports science journals, his research has advanced the field of muscle metabolism and athlete health. Daniel's major research themes include the role of vitamin D in musculoskeletal health and practical solutions to manage vitamin D status, strategies to mitigate the symptoms of exercise induced muscle damage (EIMD) and nutrition for endurance and ultra endurance performance. His work has informed guidelines and policy for elite sports organisations, including Premier League football teams, UCI WorldTeam cycling teams, Premiership rugby teams, and national cricket teams, as well as national sporting bodies such as Olympic and Paralympic committees.

As a Sport and Exercise Nutrition Registrant (SENR) with over a decade of experience, Dr. Owens has provided physiology and nutrition support to a range of elite athletes and teams across various sports. These include the Rugby Football Union age-group teams, Exeter Chiefs Rugby Union, Warrington Wolves Rugby League, Heart of Midlothian Football Club, Premier League footballers, World Champion professional boxers, and currently George Russell of the Mercedes AMG Formula 1 Team.

ABSTRACT

Vitamin K2 (menaquinones) is a fat-soluble vitamin that plays an indispensable role in the activation of γ-carboxylated proteins critical to musculoskeletal and cardiovascular integrity. Despite the extensive focus on vitamin D and calcium in sports nutrition, vitamin K2 remains an overlooked but synergistic cofactor in these pathways. Through carboxylation of osteocalcin and matrix Gla protein, vitamin K2 facilitates proper calcium utilisation, promoting bone mineralisation while simultaneously preventing vascular calcification.

Emerging data suggest that Western diets provide suboptimal vitamin K2 due to low intake of fermented foods and aged cheeses, the principal dietary sources of menaquinones. Consequently, a large proportion of the population may exhibit functional vitamin K2 insufficiency, reflected by increased levels of undercarboxylated osteocalcin and matrix Gla protein, biomarkers linked to impaired bone strength and vascular stiffness.

Recent studies indicate that supplementation with menaquinone-7 (MK-7) improves osteocalcin carboxylation more effectively than vitamin K2 and may reduce arterial calcification, fracture risk, and markers of metabolic dysfunction. Moreover, vitamin K2 appears to modulate inflammation and glucose metabolism, potentially benefiting exercise recovery and cardiometabolic health.

This presentation will examine the biological synergy between vitamins D and K2, the emerging evidence for vitamin K2 in bone and vascular physiology, and its relevance for athlete health and performance. By highlighting vitamin K2 as a critical yet neglected nutrient, the talk will explore why restoring adequate menaquinone intake could represent an important step toward comprehensive musculoskeletal support for athletes.

Nutrition to Support the Youth Athlete

14.00 - 14.45

Dr Enette Larson-Meyer

Dr Enette Larson-Meyer is currently a Professor in the Department of Human Nutrition, Foods, and Exercise at Virginia Tech, where she directs the Nutrition and Exercise Metabolism Lab. Her research focuses on how nutrition influences the health and performance of active individuals at all stages of the lifecycle and at all levels of performance. Recent research interests include healthy weight gain in athletes and military personnel, and the importance of iodine and vitamin D status in exercise performance, disease prevention and general wellness. Enette has authored over 100 scientific articles, is the author of "Plant-Based Sports Nutrition. Expert Fueling Strategies for Training, Recovery, and Performance" (Human Kinetics, 2020) and has served on several International Olympic Committee consensus panels. She serves as an Associate Editor for Medicine & Science in Sports & Exercise and the Science and Medicine of Football. Earlier in her career, Enette completed an internship at the U.S. Olympic Training Center (Colorado Springs) and served as a collegiate sports dietitian. Her personal interests include trail running, flat water kayaking and Irish-Step dancing. She is the proud mother of three college students, two of whom play/ played D2 soccer at U.S. Universities.

ABSTRACT

Optimal nutrition plays a pivotal role in supporting the growth, development and athletic performance of youth athletes. During childhood and adolescents, rapid physiological changes including increases in height, muscle mass and hormonal activity (specifically during puberty) significantly increase nutritional demands. Young athletes, however, are not only growing physically but also developing cognitively and psychosocially, all of which influence how they understand and apply nutrition concepts and healthy eating. As such, sports nutrition education must focus not only on meeting physiological needs but also on fostering lifelong healthy eating behaviors and positive attitudes toward food and body image. This session will review evidence- and practicebased strategies for nutrition to support the youth athlete including recommendations for energy, carbohydrate, protein, fat, fluid and micronutrient intake with focus on the nutrients that tend to be lacking in the diets of children and adolescents. Adequate energy intake is essential to support training and normal growth and overall intake of macronutrients and micronutrients. Carbohydrates remain the primary energy source for intense physical efforts and intake recommendations should be considered in light of the training loads and competitive characteristics typically undertaken. Protein supports general growth and development and aids in muscle repair and recovery, while dietary fat supports hormone regulation and absorption of fat-soluble vitamins/phytonutrients. However, for youth athletes, recommendations per kilogram of body weight are less critical than promoting balanced, varied, enjoyable and culturally-appropriate eating patterns. Micronutrients such as iron, calcium and vitamin D are particularly important to support oxygen transport and bone health during periods of rapid growth. These and other nutrients including folate, potassium, vitamin E, vitamin K and magnesium may be lacking in general in the diet of children and adolescents and can be supplied through intake of fruits and vegetables, whole grains, legumes, nuts and seeds. Dietary supplements are not recommended for younger athletes unless medically indicated. Fluid intake to support adequate hydration also plays a key role in performance and safety. Developing consistent fluid intake habits before, during and after exercise helps prevent fatigue and overheating. Because children and adolescents are still developing autonomy and abstract thinking, parents, caregivers and coaches serve as powerful role models in shaping eating behaviors. Their attitudes toward food, health and body image can either reinforce or undermine positive nutrition messaging. Creating supportive environments that emphasize nourishment, balance and enjoyment, rather than restriction, macronutrient counting or appearance, may help establish a healthy foundation for lifelong eating patterns. Specifically, parents and coaches can help youth athletes by modeling healthy eating behaviors and ensuring availability of healthy food choices including whole and less processed foods and encouraging use of sports foods and drinks only when necessary. Families can help by planning healthy meals and snacks ahead of time and having them ready to eat at home or on the go, and by cooking healthy meals together. Overall, sports nutrition for youth athletes should periodize overall dietary quality, hydration and education rather than rigid dietary prescriptions.

DAY 01

MONDAY, 15th DECEMBER 2025

14.00 – 15.30
Applied Theme
Chair: Wendy Martinson

14.45 - 15.30

Nutritional support for the winter sports athlete

Dr Ana Karin Kozjek Schwietert

Ana Karin Kozjek Schwietert is a medical doctor and Family Medicine resident with a background in sports nutrition and a strong interest in endurance and power sports. She holds a Bachelor's degree in Biological Chemistry from Grinnell College, USA, and an IOC Diploma in Sports Nutrition.

She has worked with many Slovenian athletes, both professional and recreational, as a sports nutritionist and now as a team doctor. Currently, she is part of the medical team for the Slovenian national cross-country skiing team.

Ana is a member of the Slovenian Society for Clinical Nutrition and a founding member of its Section for Clinical Sports Nutrition, which educates healthcare professionals, athletes, and their teams on sports nutrition.

A former competitive swimmer, she has also completed two Ironman triathlons, giving her personal insight into endurance sports. She enjoys combining medical and nutritional knowledge to support athletes' health and performance.

ABSTRACT

Winter sports encompass numerous endurance, power, and technical disciplines, each imposing distinct metabolic and physiological demands that require tailored nutritional strategies. Despite this diversity, athletes competing in cold environments encounter several shared nutritional challenges that should be addressed to optimise performance, recovery, and overall health.

Cold exposure elevates total energy expenditure through thermoregulatory processes, shivering thermogenesis, and the added effort of heavier clothing, often accompanied by altitude exposure and/or prolonged outdoor training. Meeting these increased energy requirements can be challenging due to appetite suppression in the cold, restricted food availability, and logistical barriers during training and competition. Inadequate energy and carbohydrate intake not only impair performance but also increase susceptibility to illness, injury, and the development of relative energy deficiency in sport (REDs).

Maintaining immune competence is a key concern during the winter season, as cold stress, frequent travel, and repeated high-intensity training heighten vulnerability to upper respiratory tract infections. Nutritional strategies to support immune function include ensuring sufficient energy and carbohydrate availability—particularly around exercise—along with adequate, high-quality protein intake and nutrient-rich whole foods. Certain supplements may further enhance immune resilience, including vitamin D, omega-3 fatty acids, probiotics, and polyphenols. Vitamin D deficiency remains prevalent among winter athletes due to limited sunlight exposure and suboptimal dietary intake, emphasising the importance of regular monitoring and targeted supplementation.

Hydration is another frequently underestimated challenge in cold environments, where low sweat perception and reduced thirst can contribute to chronic hypohydration, impairing thermoregulation and performance. Adequate hydration is also essential for maintaining the integrity of mucosal surfaces, providing a first line of defence against respiratory pathogens.

As winter athletes prepare for upcoming major competitions, including the 2026 Winter Olympic Games, the need for evidence-based and individualised nutritional support is increasingly recognised. Through targeted interventions, sports nutritionists play a critical role in addressing these challenges to support health and maximise athletic performance in cold-weather conditions.

Dietary strategies to mitigate muscle disuse atrophy

14.00 - 14.45

Prof Luc van Loon

Luc van Loon is a Professor of Physiology of Exercise at the Department of Human Biology at Maastricht University Medical Centre.

Luc has an international research standing in the area of skeletal muscle metabolism. Current research in his laboratory focuses on the skeletal muscle adaptive response to exercise, and the impact of nutritional and pharmacological interventions to modulate muscle metabolism in health and disease. The main research interests of his laboratory include muscle metabolism, sports nutrition, clinical nutrition, adaptation to endurance and resistance type exercise, and the use of physical activity and/or nutritional interventions to improve health in chronic metabolic disease and aging. The latter are investigated on a whole-body, tissue, and cellular level, with skeletal muscle as the main tissue of interest.

ABSTRACT

Periods of muscle disuse occur regularly in otherwise healthy humans for several reasons, such as the recovery from serious injury or illness. The loss of skeletal muscle mass and strength that occurs during such short successive periods of muscle disuse has substantial negative health consequences and may be responsible for most of the muscle lost during aging. Mechanistically, muscle atrophy during prolonged muscle disuse has been attributed to a decline in both basal and postprandial muscle protein synthesis rates, with little changes in muscle protein breakdown. A period of muscle disuse reduces energy requirements and appetite. Consequently, food intake generally declines, resulting in inadequate dietary protein consumption to allow proper muscle mass maintenance. Maintaining dietary protein intake is required to attenuate muscle loss during a period of disuse. Neuromuscular electrostimulation can be applied as a surrogate for physical activity when one or more limbs are temporarily immobilized. More work is required to elucidate the impact of disuse on basal and postprandial rates of muscle protein synthesis and breakdown. Such information will provide novel targets for nutritional interventions to further attenuate muscle disuse atrophy and, as such, support more active, healthy aging.

DAY 01

MONDAY, 15th DECEMBER 2025

14.00 – 15.30
Science Theme
Chair: Alan Smeets

14.45 - 15.30

Fasting and exercise: the benefits and the drawbacks

Prof Javier Gonzalez

Javier is Professor of Nutrition and Metabolism at the Centre for Nutrition, Exercise and Metabolism (CNEM), University of Bath. His is interested in human fuel use. How we get fuel from our diet, burn fuels during exercise; and store fuels when they exceed our requirements. His research group employs a variety of methods to understand human fuel use, including indirect calorimetry, tissue biopsies and stable isotope (IV) infusion and ingestion. These methods are used across laboratory-based and free-living studies. In recognition of his research, Javier received the Julie Wallace Award 2018 from the Nutrition Society and is an Excellence in Nutrition Fellow of the American Society for Nutrition (FASN). He is also an Associate Editor for the International Journal of Sport Nutrition & Exercise Metabolism and is a consultant to several organisations in sport, health and nutrition.

ABSTRACT

Fasting is often practiced by athletes and non-athletes as a means (among others) to control body weight and augment training adaptations. This presentation will cover some of the basic physiology of fasting, such as the timecourses of changes in metabolism in response to fasting. The evidence surrounding the benefits and drawbacks of fasting for athletes and non-athletes will then be discussed, such as the potential to augment skeletal muscle signalling related to endurance training adaptations that are involved in exercise performance and cardiometabolic health. By understanding the potential mechanisms by which skeletal muscle signalling is regulated, then it may be possible to employ other strategies that harness the benefits of fasting without the drawbacks (i.e. fasting mimetics). Some of the evidence on fasting mimetics will therefore also be introduced.

Lessons from a Life in Science

16.00 - 17.00

Prof Luc van Loon

Luc van Loon is a Professor of Physiology of Exercise at the Department of Human Biology at Maastricht University Medical Centre.

Luc has an international research standing in the area of skeletal muscle metabolism. Current research in his laboratory focuses on the skeletal muscle adaptive response to exercise, and the impact of nutritional and pharmacological interventions to modulate muscle metabolism in health and disease. The main research interests of his laboratory include muscle metabolism, sports nutrition, clinical nutrition, adaptation to endurance and resistance type exercise, and the use of physical activity and/or nutritional interventions to improve health in chronic metabolic disease and aging. The latter are investigated on a whole-body, tissue, and cellular level, with skeletal muscle as the main tissue of interest

ABSTRACT

Though Luc has declined the invitation to talk about himself, he is happy to share some of the lessons he has learned throughout the last 30 years of working in academia. This will include some of the findings that were encountered outside the comfort of his own expertise and may provide some leads for many young investigators to further explore the many unknowns in human physiology.

DAY TWO TUES, 16TH DEC 2025

G27- ALL PLENARY SESSIONS	G26- ALL PLENARY OVERSPILL
G27 - SCIENCE SESSIONS	G36 - APPLIED

PLENARY SYMPOSIUM - Chair: Dr Paul Morgan	
09.00-09.40	Life on the edge – the nutrition challenges of space flight - Serge Pieters (Belgium)
09.40-10.20	Body image and nutrition in adolescent athletes - Dr Christine Sundgot-Borgen (Norway)
10.20-11.00	Body Image, Nutrition, and Psychological Wellbeing Among British Gymnasts - Mhairi Keil (UK) / Maimee Titmuss-Morris (UK)

11.00-11.30 Tea/Coffee and Poster Presentations

Science Theme - Chair: Prof James Morton	Applied Theme - Chair: Dr Enette Larson-Meyer GELITA
11.30-13.00 Nutrition for cycling: an evidence-based approach Prof Asker Jeukendrup (UK), Prof Louise Burke (Australia), Prof Javi Gonzalez (UK)	**11.30-12.10** Disordered eating or eating to win: is there a conflict? - Prof Jorunn Sundgot-Borgen (Norway)
	12.10-12.50 Resistance training, nutrition and healthy ageing Dr Eric Rawson (USA)

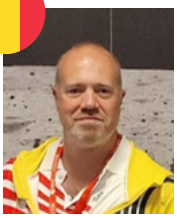
12.50-14.00 Lunch and Poster Presentations

PLENARY SYMPOSIUM - Chair: Prof Graeme Close	
14.00-15.30	Bitesize Nutrition Original Research Communications 8 speakers 5-minute presentations. Slides advance every 15 seconds so 20 slides. 1 question at end.

15.30-16.00 Tea/Coffee and Poster Presentations

PLENARY SYMPOSIUM - Sports Nutrition Industry Presentations - Chair: Prof Craig Sale	
16.00-17.30	Each Company, 8-minute Presentation, Voting and Q+A at the end. Optional Manchester United FC Stadium Tour - See Page 7 for full details

09.00 - 09.40 Life on the Edge – the Nutrition Challenges of Space Flight



Serge Pieters

Serge Pieters is a dietitian and nutritionist in the areas of sports nutrition and astronaut physiology. He is trained as a gourmet cook with experience in starred restaurants before specializing in more scientific studies. He has clinical experience in the Queen Fabiola Children's University Hospital (Brussels) and more specifically in the management of adolescents, diabetics and intensive care. For more than 20 years, he has devoted his time to teaching sport nutrition and dietetics at the Haute Ecole Léonard de Vinci (Brussels), UCLouvain and Paris. Fond of sports and having performed athletics at a national level, he expanded his training in sports nutrition in Paris. He offers his knowledge and advice both to the Olympic athletes of the Wallonia-Brussels Federation (more than 60 athletes since the Beijing Olympics) and other professional teams but also many amateur athletes with varied projects. His other professional fascination, the conquest of space, leads him to be involved as an expert in the European Space Agency and more particularly in the physiological and nutritional aspects of the MELiSSA project. This fabulous mission consists in developing food for the astronauts for the journey to Mars. Honorary President of the Professional Union of Dieticians of Belgium.

ABSTRACT

With the discovery of the Americas, conquistadors brought unfamiliar foods into European traditions, but progress came at a steep human cost: dietary deficiencies, scurvy, beriberi, and mortality during voyages and colonization. Today, missions to Mars present challenges of similar magnitude. On Earth we are protected and adapted; space is by definition hostile to humans. Microgravity, ionizing radiation, isolation, and confinement lead to a partial human adaptation. Within weeks, blunt appetite and drive energy deficits induce a lean mass and bone mineral density decline; without targeted nutrition and exercise, recovery may be incomplete, jeopardizing astronaut health and mission success. Space food must therefore meet requirements beyond taste. Rations must satisfy macro and micronutrient needs while obeying severe constraints: minimal mass and volume, stability over years through thermostabilization, freeze-drying, or irradiation, rigorous microbiological safety, and enough variety to combat sensory fatigue. A Mars mission also demands nutritional periodization: preflight preparation, in-transit support, surface operations, the return voyage, and post-mission recovery. The MELiSSA program (Micro-Ecological Life Support System) from the European Space Agency explores a regenerative, closed-loop ecosystem providing water, oxygen, and food from a curated set of 10 crops—potatoes, wheat, vegetables, ... and spirulina. With more than one hundred recipes - from spirulina risotto to Martian bread. The MELiSSA program may offer practical pathways with spin-off benefits for agriculture, sustainability, and human health on Earth.

Body image and nutrition in adolescent athletes

09.40 - 10.20

Dr Christine Sundgot-Borgen

Christine Sundgot-Borgen holds a Ph.D. in Sport Sciences from the Norwegian School of Sport Sciences, a European Master in Health and Physical Activity, and an IOC Diploma in Sports Nutrition. Her doctoral research involved the development, implementation, and evaluation of a school-based randomized controlled trial promoting positive body image among high school students.

She is currently a postdoctoral researcher at the Department of Psychology, University of Oslo, where she evaluates the implementation of the interdisciplinary subject Health and Life Skills in schools. Previously, she held a postdoctoral position at the Regional Department of Eating Disorders at Oslo University Hospital.

She has led and contributed to intervention studies promoting positive body image and preventing eating disorders in both athletes and non-athletes, while her research interests also include physical activity, exercise, social media and sports nutrition. Her work spans diverse populations such as adolescents, elite dancers, elite young and adult athletes, young adults In university and fitness centersettings, and bariatric surgery patients.

She has published 29 peer-reviewed articles and contributed three book chapters on body image, sport nutrition, and eating disorders in athletes. Christine is also a former elite athlete, having represented Norway in rhythmic gymnastics and freestyle/disco jazz dance.

ABSTRACT

Adolescent athletes develop in a cultural landscape where sport performance ideals increasingly overlap with societal expectations of appearance(1). During this period of biological growth and psychosocial development, the motivation to perform well often coexists with a strong drive to look the part(2). Pubertal changes naturally alter body composition(3), yet these changes frequently conflict with the aesthetic norms celebrated both within sport and across social media(2). The result is a persistent tension between performing well, maintaining health, and achieving an "ideal" body.

Within many sports, body weight, shape, or composition are perceived—explicitly or implicitly—as indicators of performance potential(4). Societal ideals of thinness and visible muscularity merge with sport-specific expectations for leanness or muscle definition, and these messages are reinforced by digital platforms and commercial marketing(5). For adolescents, whose self-concept and critical thinking are still developing, this environment increases vulnerability to misinformation and unhealthy training and nutritional regimes(6).

Body image concerns that arise under these pressures can substantially influence eating behavior(4). Restrictive intake, avoidance of macronutrients or specific food groups, or the misuse of supplements may stem from misplaced attempts to optimize performance. When such practices lead to low energy availability, hormonal disturbance, impaired recovery, or injury, both physical and psychological health are compromised(7). Even before clinical thresholds are reached, preoccupation with food or physique can reduce enjoyment and limit the ability to constructive focus on their sport.

The implications extend beyond individual health. How young athletes perceive their bodies affects how they listen to and apply professional advice, how they engage with teammates, and how nutritional and performance cultures develop within sport environments. A performance-oriented message may be interpreted through the lens of appearance, altering its meaning and impact(8). Thus, understanding body image is essential for effective communication and adherence to evidence-based nutrition guidance.

Supporting healthy body image within sport nutrition practice requires intentional communication and cultural awareness. Emphasizing function, energy, and recovery rather than weight or appearance helps redirect attention toward genuine performance outcomes. Creating psychologically safe environments, challenging harmful commentary, and recognizing early signs of disordered attitudes are integral to prevention. Encouraging critical evaluation of media and marketing claims empowers athletes to differentiate between aesthetic ideals and physiological needs(9).

Balancing health, performance, and appearance is a central challenge of modern adolescent sport. Addressing body image is not peripheral to nutrition or performance—it is foundational. When young athletes develop a confident and realistic relationship with food and their bodies, they are better equipped to sustain training, adapt positively, and experience genuine fulfilment in sport. Promoting this balance protects not only immediate well-being but also long-term athletic potential and lifelong healthy habits.

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DAY 02

TUESDAY, 16th DECEMBER 2025

9.00 – 11.00
Plenary Symposium
Chair: Dr Paul Morgan

10.20 - 11.00 Body Image, Nutrition, and Psychological Wellbeing Among British Gymnasts

Mhairi Keil

Mhairi is a Senior Performance Nutritionist with over 18 years' experience in elite and professional sport. Her work has supported world-class athletes across five Olympic, Winter Olympic, and Paralympic cycles, as well as high-performance teams in Rugby Union, Ballet, and British Gymnastics.

Currently, Mhairi is a Technical Lead for the Nutrition Team at the UK Sports Institute and Lead Nutritionist for GB Modern Pentathlon. Her portfolio spans a diverse array of sports, including GB Snow Sport, Women's Rugby, and GB Wheelchair Basketball, amongst others. She is deeply invested in advancing athlete health, particularly in female athletes, and previously held the role of Female Athlete Health Lead with British Gymnastics.

Mhairi consults for organisations such as One Dance UK, Hungarian Speed Skating, and Marylebone Health Group. In addition, she contributes to strategy development for the FA Women's Programme, working alongside the Lead Nutritionist to optimise support systems for female footballers.

Specialising in evidence-based nutrition, Mhairi's expertise centres around female athlete health, body image, and bone health. Her philosophy centres on the belief that elite performance is built on a foundation of wellbeing, and she is dedicated to cultivating long-term, sustainable habits that enhance both performance and life beyond sport.

Maimee Titmuss-Morris

Maimee's work supports people to understand themselves and create the best version of life they can imagine. She has led transformative projects in athlete transition, mental health and wellbeing, body image, neurodiversity and personal development planning. She blends her personal and professional experience with evidenced based practice and uses curiosity and creativity to get the best out of people. In her role as staff wellbeing lead for the Paris 2024 Paralympic Games, Maimee designed and delivered initiatives that promoted collective care, recovery, connection and joy.

She holds an MSc in Sport & Exercise Psychology from Loughborough University and an ILM Level 7 in Executive Coaching and Mentoring. Her practice is grounded in empathy, insight, and a belief in the power of human connection.

Maimee Titmuss-Morris is a skilled Performance Lifestyle Coach and Wellbeing Lead, with experience spanning more than two Olympic and Paralympic cycles, currently working across British Gymnastics and British Triathlon through the UK Sports Institute. Maimee has experience over a variety of performance environments including professional sports and the corporate sector, where she focused on culture change, working with the philosophy that we do better when we feel better. She has a relentless passion for supporting individuals to develop personally and professionally as they journey through their sporting careers into life after.

ABSTRACT

Gymnastics is a sport that demands high technical skill and physicality combined with aesthetic presentation — qualities that often intersect with challenges around body image, especially among young athletes navigating puberty and identity formation. This session explores the multifaceted relationship between body image, nutrition, and psychological well-being in British gymnasts, drawing on insights from athletes themselves.

We begin by unpacking the concept of body image and examining why it presents unique challenges in gymnastics. Factors such as age, developmental changes, the subjective nature of judging, and the language used all contribute to how gymnasts perceive their bodies. These perceptions can significantly impact mental health and a gymnast's relationship with food.

Through qualitative reflections and lived experiences shared by gymnasts, we highlight the emotional toll of appearance-based expectations and the internal conflicts they face. The session will also present strategies for reframing body image—shifting the focus from aesthetics to functionality and appreciation of physical capability.

This discussion is essential for anyone supporting any athlete in their journey through sport to ensure they do so with their health and well-being at the core of their progression.

Disordered eating or eating to win: is there a conflict?

11.30 - 12.10

Prof Jorunn Sundgot-Borgen

Jorunn Sundgot-Borgen is a professor of Physical Activity and Health at the Norwegian School of Sport Sciences (NSSS) within the Institute for Sports Medicine. She obtained her PhD from NSSS in 1993. She has served as a visiting scholar at Yale University and a visiting professor at UC Berkeley.

From 1995 to 2009, she led the Nutrition department at the Norwegian Olympic Training Center and has held leadership positions in the Nordic eating disorder organization. She is a member of expert groups for the Norwegian Women's Public Health Association and the IOC, focusing on body composition, REDs, and mental health.

Her main areas of interest are prevention and treatment of eating disorders in athletes, perfectionism, nutrition and the female athlete triad/REDs, elite athletes and pregnancy and sexual harassment and abuse.

She is an ACSM Fellow and has been awarded an "Honorary Fellowship" from the Faculty of Sports and Exercise Medicine (FSEM) at Royal College of Physicians of Ireland (RCPI), she has received the Norwegian Research Council's Excellence in Science Communication award and she was honored with the Women's Health Research Award in 2022, founded by the Norwegian Women's Public Health Association.

With over 220 scientific publications, Jorunn also provides guidance to elite athletes and coaches regarding REDs, eating disorders, pregnancy and sexual harassment.

Jorunn has been a member of the national gymnastics team and later served as a coach for the national team.

ABSTRACT

The pursuit of peak performance in elite sport requires systematic optimization of training, recovery, and nutrition. Evidence-based nutrition strategies that are intentionally structured to support performance, adaptation, and health should not be misclassified as disordered eating (DE). When nutritional periodization, energy availability, and body composition are monitored with the clear goal of improving performance outcomes and maintaining health, such practices represent performance-focused nutrition. However, when the primary motivation shifts from enhancing performance to achieving a specific body weight, fat percentage, or physique ideal, the behavior may progress toward DE or an eating disorder (ED). At that point, both the athlete and the support team have failed to maintain an appropriate health–performance balance.

Eating disorders are 2–3 times more prevalent among athletes than in the general population (1,2,3). Aesthetic, endurance, and weight-class sports show the highest prevalence due to sport-specific physique pressures and performance beliefs that link leanness with success (4). Disordered eating and low energy availability (LEA) are key contributors to Relative Energy Deficiency in Sport (REDs)—a multifactorial syndrome characterized by impaired physiological and psychological functioning, affecting multiple systems such as reproductive (menstrual dysfunction in females, lowtestosterone in males), bone, metabolic, immune, and performance-related domains (5).

While structured nutrition planning usually aims to match energy intake to expenditure, REDs arise when energy availability falls below the level required to sustain optimal body function (5). This deficit may occur unintentionally due to inadequate knowledge or high training loads, or intentionally through restrictive behaviors motivated by body image concerns. The distinction between eating to perform and disordered eating thus lies in intent, control, and outcome—performance-oriented fueling is flexible, evidence-based, and guided by qualified professionals; DE is rigid, appearance-driven, and potentially harmful.

Prevention of DE relies on fostering a culture of openness, trust, and shared responsibility. Regular dialogue around body composition, nutrition, and mental health issues should be normalized within teams. Athletes must feel safe to voice concerns and seek guidance without stigma. Screening tools such as LEAF-Q or EDE-Q can assist in early detection of at-risk athletes (6,7). Equally, adherence to best-practice guidelines for body composition assessment—limiting frequency, ensuring confidentiality, and conducting measurements only when performance-relevant—is essential to avoid harm.

Creating a unified organizational understanding of what constitutes healthy performance optimization is key. The athlete's value must never be equated with body composition but rather with performance, effort, and well-being. Eating to win—when guided by evidence, intention, and ethics—is not disordered eating. When appearance or thinness becomes the overriding driver, the system has failed. Sustainable elite performance requires that every member of the support team prioritize both health and performance.

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DAY 02

TUESDAY, 16th DECEMBER 2025

11.30 – 12.50
Applied Theme
Chair: Dr Enette Larson-Meyer

12.10 - 12.50

Resistance training, nutrition and healthy ageing

Dr Eric Rawson

Eric S. Rawson is Chair and Professor of Health, Nutrition, and Exercise Science at Messiah University in Mechanicsburg Pennsylvania. Dr. Rawson received his Ph.D. from the University of Massachusetts, Amherst where he studied under the direction of Dr. Priscilla Clarkson. Over the past two decades, Dr. Rawson's research has focused on the interactions between nutrition and skeletal muscle. In particular, Dr. Rawson has studied the effects of the dietary supplement creatine on muscle and brain function. Dr. Rawson has been an active member in the American College of Sports Medicine (ACSM) since 1996, has served on the ACSM Board of Trustees, as Chair of the ACSM Annual Meeting Program Committee, as Chair of the ACSM National Chapter Nutrition Interest Group, and is a past–president of the Mid-Atlantic ACSM regional chapter. Dr. Rawson has delivered about 200 professional presentations, is co-editor of the text Nutrition for Elite Athletes, co-author of Nutrition for Health Fitness and Sport, and has authored/co-authored numerous articles and book chapters. His research has been funded by the National Institutes of Health and various foundations.

ABSTRACT

Although the practice of resistance training dates back across several centuries, the science of resistance training is much younger. Additionally, the science and practice of resistance exercise are overwhelmed with legends and bro-science. This presentation will focus on several of the long-standing myths surrounding resistance exercise as it pertains to different populations, successful aging, and nutritional support.

Nutrition for cycling: an evidence-based approach

Prof Asker Jeukendrup

Prof Louise Burke

Prof Javier Gonzalez

Professor Asker Jeukendrup is one of the world's leading sports nutritionists and exercise physiologist who spent most of his career as a professor at the University of Birmingham (UK) (sports sciences). He is currently director of a performance consulting business "Mysportscience", as well as a professor at Loughborough University. Asker is Performance Manager Nutrition for the Dutch Olympic team and the Red Bull Athlete Performance Center. He was head performance Nutrition for the Visma Lease a Bike Pro cycling team, who won all 3 grand Tours in 2023 recently became the Director of Performance Strategy for the Red Bull BORA Hansgrohe world tour cycling team as well as head of nutrition. He teaches the FC Barcelona Advanced Sports Nutrition course and maintains a website that aims to help separate sense and non-sense in sport science and sport nutrition (www.mysportscience.com). He also has an online education platform www.mysportscienceacademy.com.

In his academic career Dr Jeukendrup authored 10 books and over 250 research papers and book chapters. His textbook of Sport Nutrition is one of the best-selling textbooks on this topic with a new edition in June 2024. In addition to his academic work, he worked with Olympic and World champions, Tour de France cyclists, Champions league football teams, and other elite athletes. His mission is to use science to help athletes achieve their goals.

Louise is a sports dietitian with 40 years of experience in the education and counselling of elite athletes. She worked at the Australian Institute of Sport for thirty years, first as Head of Sports Nutrition and then as Chief of Nutrition Strategy. She was the team dietitian for the Australian Olympic Teams for the 1996-2012 Summer Olympic Games. Her publications include over 350 papers in peer-reviewed journals and book chapters, and the authorship or editorship of several textbooks on sports nutrition. She is an editor of the International Journal of Sport Nutrition and Exercise Metabolism. Louise was a founding member of the Executive of Sports Dietitians Australia and is a Director of the IOC Diploma in Sports Nutrition. She was awarded a Medal of the Order of Australia in 2009 for her contribution to sports nutrition. Louise was appointed as Chair in Sports Nutrition in the Mary MacKillop Institute of Health Research at Australian Catholic University in Melbourne in 2014 and took up this position in a full-time capacity in 2020.

Javier is Professor of Nutrition and Metabolism at the Centre for Nutrition, Exercise and Metabolism (CNEM), University of Bath. His is interested in human fuel use. How we get fuel from our diet, burn fuels during exercise; and store fuels when they exceed our requirements. His research group employs a variety of methods to understand human fuel use, including indirect calorimetry, tissue biopsies and stable isotope (IV) infusion and ingestion. These methods are used across laboratory-based and free-living studies. In recognition of his research, Javier received the Julie Wallace Award 2018 from the Nutrition Society and is an Excellence in Nutrition Fellow of the American Society for Nutrition (FASN). He is also an Associate Editor for the International Journal of Sport Nutrition & Exercise Metabolism and is a consultant to several organisations in sport, health and nutrition.

ABSTRACT

Louise Burke:

The 2026 Union Cyclisme Internationale Project on Nutrition for Cycling recognised the unique health issues affecting riders across the 11 disciplines within three specific reviews: 1. Body Composition, Energy Requirements and Energy Availability in Cycling; 2. Does Cycling Create a "Perfect Storm" for Bone Health?: Cycling-specific challenges to bone and nutritional strategies to overcome these and 3. The role of nutrition in the prevention and management of illnesses and injuries in elite cycling. This presentation summarises the key findings and recommendations from each review. First, it discusses the unique energy challenges faced by riders across many cycling disciplines/events; the extreme energy expenditure involved in specialized training periods and during some events (e.g. the road cycling Grand Tours) and the energy restriction/deficits involved in achieving the perceived benefits of very low body mass and body fat levels to maximise power to mass ratio (PMR). The potential concerns associated with some scenarios of low energy availability and allostatic/moderating factors need to be better investigated, and managed by strategies at the level of the individual cyclist and sporting organisations. The perfect storm that underpins findings of poor bone health in cyclists include a light and lean phenotype, the repetitive low impact nature of cycling (limited stimulus for bone metabolism); post-cycling episodes of transient increases in bone resorption, and low energy availability or inadequate intake of bone-important nutrients. A multi-faceted approach to address these is needed. Finally, common injuries and illnesses in elite cycling, including skin injuries, upper respiratory tract infections (URTIs), gastrointestinal (GI) disturbances, and sports-related concussions can involve nutritional strategies, many of which require further research.

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ABSTRACT CONTD

Javier Gonzalez:

In this talk, the inaugural Union Cycliste Internationale (UCI) consensus guidelines on nutritional supplements, nutritionally relevant technologies and nutrition for special environments will be presented. Cycling is a sport where supplements can have a specific role in supporting health and performance which can relate to the physiological demands of the sport in addition to practical aspects due to travel and environment. The evidence and guidance around the potential use of supplements within a cycling context will be presented, followed by a discussion of how technology may be able to assist athletes and practitioners with nutritional support. This will include evidence on methods that attempt to measure energy and substrate metabolism, body temperature and sweat losses. Finally the role of special environments such as heat, cold and altitude will be discussed. Evidence-based nutrition and fluid recommendations for optimizing cycling performance and fostering adaptation in these environments will be presented.

DAY THREE WED, 17TH DEC 2025

PLENARY SYMPOSIUM - Chair: Dr Oliver Witard	
9.00- 11.00	Collecting data in the field - the challenges and benefits - Prof Louise Burke (Australia)
10.00- 11.00	Diet, exercise and cardiometabolic disease: an update - Prof Jason Gill (UK)
11.00-11.30 Tea/Coffee and Poster Presentations	
PLENARY SYMPOSIUM - Early Career Researchers - Chair: Prof Craig Sale	Manchester Metropolitan University | Institute of Sport
11.30- 13.00	Dietary modulators of autophagy – implications for muscle repair and post-exercise recovery - Dr Nathan Hodson (UK)
	Dietary strategies to enhance amino acid availability - Dr Paul Morgan (UK)
	Fuelling Endurance Athletes: Lessons from 13C Magnetic Resonance Spectroscopy - Dr Mark Hearris (UK)
12.50-14.00 Lunch and Poster Presentations	
PLENARY SYMPOSIUM - Chair: Dr Hans Braun	
14.00- 14.45	The Evolution of Sports Drinks - Dr Ian Rollo (USA)
14.45- 15.30	How much carbohydrate do athletes really need to consume during exercise? - Prof James Morton (UK) SiS

Collecting data in the field - the challenges and benefits

9.00 - 10.00

Prof Louise Burke Louise is a sports dietitian with 40 years of experience in the education and counselling of elite athletes. She worked at the Australian Institute of Sport for thirty years, first as Head of Sports Nutrition and then as Chief of Nutrition Strategy. She was the team dietitian for the Australian Olympic Teams for the 1996-2012 Summer Olympic Games. Her publications include over 350 papers in peer-reviewed journals and book chapters, and the authorship or editorship of several textbooks on sports nutrition. She is an editor of the International Journal of Sport Nutrition and Exercise Metabolism. Louise was a founding member of the Executive of Sports Dietitians Australia and is a Director of the IOC Diploma in Sports Nutrition. She was awarded a Medal of the Order of Australia in 2009 for her contribution to sports nutrition. Louise was appointed as Chair in Sports Nutrition in the Mary MacKillop Institute of Health Research at Australian Catholic University in Melbourne in 2014 and took up this position in a full-time capacity in 2020.

ABSTRACT

There are a number of Expert Opinions and Consensus Statements on Nutrition for High Performance Sport, including many to which this presenter has contributed. Although these outputs are well intended, audits of the sports nutrition literature show that athletes who are truly elite (Tier 4 and 5 of the Mackay Tiering system) are poorly represented within the studies on which they are based. Therefore, there is a need to find protocols that can engage elite athletes to be involved in sports nutrition research. Challenges to achieving this include the availability of athletes and their willingness (or ethics) to undertake invasive data measurement, be randomised to undertake interventions that may not be optimal for their performance or belief systems or compete with real-world effort in artificial measures of performance. Taking research to the athlete, including the co-design of field-based projects with sporting organisations (administrators, coaches, athletes, embedded sports scientists) provides an alternative option. This presentation builds on personal experiences of the Research Embedded Training Camp model as well as a recent review of methods for undertaking field-based competition and training studies1 and an emerging protocol which might be considered "Citizen Sports Science" in which research is undertaken by collating the experiences of athletes in their own environment. Other models in which interventions are integrated into real-world competition are also discussed. The learnings include methods and benefits of building authentic research relationship with athletes and investigating practices representing their insights or real-world implementation. The balance between measuring performance in real world settings which maximise the athlete's incentivization and competition reliability, but can be disturbed by "non-standardised" conditions will also be explored.

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DAY 03

WEDNESDAY, 17th DECEMBER 2025

9.00 – 10.00
Plenary Symposium
Chair: Dr. Oliver Witard

10.00 - 11.00

Diet, exercise and cardiometabolic disease: an update

Prof Jason Gill

Jason Gill is Professor of Cardiometabolic Health at the University of Glasgow. He leads a multi-disciplinary research group investigating the prevention and management of vascular and metabolic diseases and has published >200 peer-reviewed papers. This work includes epidemiology of lifestyle-related factors and cardiometabolic disease risk, particularly why certain population groups appear to have increased susceptibility to the adverse effects of an 'unhealthy' lifestyle; lifestyle interventions for the prevention and management of cardiometabolic disease; and investigations into the mechanisms by which diet and exercise regulate insulin sensitivity and lipoprotein metabolism. Jason has contributed to the UK Physical Activity guidelines, NICE guidelines for prevention of type 2 diabetes, and SIGN guidelines for obesity and cardiovascular disease. He is chair of the Diabetes UK Research Strategy Group for Prevention and Management of Type 2 diabetes, a member of UK Government Obesity Healthcare Goals Scientific Advisory Board, and an editor at several journals including the BJSM. He is a Fellow of the Royal Society of Edinburgh, the Royal College of Physicians of Edinburgh, and the Chartered Association of Sport and Exercise Sciences

ABSTRACT

Physical inactivity and excess adiposity are important drivers of morbidity and mortality worldwide. It is estimated that almost one in ten deaths worldwide attributable to inactivity and, in the UK, that a quarter of all life years lost are attributable to obesity.

The available evidence indicates that exercise alone has a relatively modest effect on body weight, that restriction of dietary intake is more effective for weight loss, and that a combination of diet and exercise is more effective than diet alone. However, even in the absence of weight loss, exercise can induce substantial reductions in adiposity, particularly in metabolically harmful ectopic depots. In addition, the importance of exercise in regulation of body weight may be greater in those with higher genetic predisposition to obesity.

Over the long-term, most common dietary approaches (e.g. low fat and low carbohydrate) have similar effectiveness for weight loss, with adherence being the most important predictor of success, suggesting that individuals should choose any diet they can stick to. However epidemiological evidence shows a J-shaped relationship between carbohydrate and risk of mortality, with lowest risk when consumption is about 50% of energy intake, indicating that more extreme dietary approaches may not be optimal over the longer-term.

Over the past seven decades a large body of epidemiological evidence has demonstrated a strong and consistent inverse relationship between physical activity and risk of adverse health outcomes. Historically much of this evidence has been based on self-reported measures of activity levels, which are subject to substantial error, and more recent data using device-based measurement of physical activity has refined our understanding of the dose-response relationship between physical activity and health. These data suggest that the benefits of physical activity may be greater, and that they occur at lower levels of activity than we previously envisaged from self-reported measurements. This important implications for both future physical activity guidelines and for development of interventions to promote physical activity amongst the least active. There is also now increasing evidence that muscle-strengthening activity confers additional benefits over and above aerobic activity alone for cardiovascular and metabolic health outcomes.

There is now clear evidence from large-scale, long-term randomised controlled trials that lifestyle intervention is effective at preventing or delaying the incidence of type 2 diabetes in individuals with impaired glucose regulation. There is also evidence that intensive lifestyle intervention can induce diabetes remission in some patients. There is less evidence from randomised trials that lifestyle intervention can reduce adverse cardiovascular outcomes, but 30-year follow-up data from the Da Qing study indicates a significant, but delayed, effect of lifestyle intervention on incidence of cardiovascular events and all-cause mortality, providing the first clear randomised controlled trial data that lifestyle intervention can increase longevity.

Dietary modulators of autophagy – implications for muscle repair and post-exercise recovery

11.30 - 13.00

Dr Nathan Hodson

Dr. Nathan Hodson is a Senior Lecturer in Musculoskeletal Physiology within the Institute of Sport at Manchester Metropolitan University. Prior to this, he completed a postdoctoral fellowship in the Faculty of Kinesiology and Physical Education at the University of Toronto and his Ph.D. in Skeletal muscle metabolism at the University of Birmingham. Throughout his career, Dr. Hodson's research has focussed on the underpinning mechanisms of skeletal muscle adaptation to exercise and nutrition, with a particular focus on anabolic signalling. In recent years, this research focus has shifted toward a cellular process called 'autophagy', the body's inherent recycling pathways. This work aims to understand how skeletal muscle autophagy may contribute to recovery from exercise-induced muscle damage, whether it can be activated through nutritional supplementation and if it is dysregulated in populations exhibiting skeletal muscle anabolic resistance (i.e. older or obese individuals). Nathan also holds a status only Assistant Professorship at the University of Toronto where he continues to conduct research and supervise postgraduate students.

ABSTRACT

Skeletal muscle is a highly plastic tissue that can adapt relatively quickly to a range of stimuli. For such rapid adaptation to occur, muscle cells must degrade dysfunctional/unused cellular material to provide substrate for new resources. This inherent cellular recycling process, named autophagy, has been shown to be essential for macronutrient metabolism and muscle mass maintenance in pre-clinical models, however, very little is known about its involvement in human skeletal muscle. In spite of this, this pathway is often referenced in social media and news outlets as a key factor in some dietary strategies and even longevity. This talk will focus on summarising the current knowledge base on autophagy in human skeletal muscle, identifying the key limitations of previous work. Emerging methodologies to assess autophagic capacity in human skeletal muscle will be presented, providing a more relevant readout compared to commonly used static measures. Finally, potential dietary modulators of autophagy, over and above conventional fasting, will be discussed within the context of exercise adaptation and skeletal muscle recovery to understand if this pathway can be leveraged in varying populations to improve skeletal muscle metabolism and function.

DAY 03

WEDNESDAY, 17th DECEMBER 2025

11.30 – 13.00
Plenary Symposium - Early Career Researchers
Chair: Prof Craig Sale

11.30 - 13.00

Dietary strategies to enhance amino acid availability

Dr Paul Morgan

Dr Paul Morgan is a Senior Lecturer in Human Nutrition and Metabolism at Manchester Metropolitan University's Institute of Sport. He earned his Ph.D. in Exercise Physiology and Metabolism from the University of Exeter. Dr Morgan's research focuses on the integration of exercise and diet across the lifespan, with a particular emphasis on protein metabolism. His work employs nutritional and pharmacological interventions alongside exercise training to explore their effects on human physiology.

ABSTRACT

Optimising amino acid availability is fundamental for supporting muscle protein synthesis (MPS), recovery, and adaptation to training. This talk will explore evidence-based dietary strategies designed to maximise amino acid availability in both athletic and clinical settings. Key topics will include the interpretation of the recommended dietary allowance (RDA) for protein, the influence of protein source and quality, and their implications for enhancing amino acid availability. The session will highlight the critical distinction between postprandial amino acid availability and amino acid kinetics in relation to MPS. Emerging insights into the regulation of splanchnic extraction, gut–muscle interactions, and the influence of habitual diet composition will also be explored. By integrating findings from mechanistic research and applied nutrition trials, this talk will offer practical, evidence-based recommendations to optimise amino acid availability for improved performance, recovery, and muscle health across diverse populations.

Fuelling Endurance Athletes: Lessons from 13C Magnetic Resonance Spectroscopy

9.30 - 11.30

Dr Mark Hearris

Dr. Mark Hearris is a Lecturer in Exercise Metabolism and Nutrition at Manchester MetUniversity. His research interests lie in the field of carbohydrate metabolism where he has investigated the influence of carbohydrate availability in modulating exercise performance and training-induced adaptations. This research has informed modern carbohydrate feeding guidelines during exercise as well as current periodisation strategies for the endurance athlete. Mark's current research focuses on the use of 13C magnetic resonance spectroscopy to non-invasively measure skeletal muscle and liver glycogen metabolism in response to exercise and carbohydrate feeding

As a practitioner, Mark is a Registered Nutritionist with the Association for Nutrition (AfN). He has applied his expertise across both team and endurance sports, serving as a consultant performance nutritionist for Preston North End Football Club between 2016-2021 and providing bespoke nutrition and physiology support to individual endurance athletes.

ABSTRACT

Glycogen stores in muscle and liver play a crucial role in sustaining performance during prolonged moderate- to high-intensity exercise. Whilst significant advancements have been made in understanding muscle glycogen use during exercise and its (re)synthesis during subsequent recovery, the dynamics of liver glycogen metabolism in response to exercise and recovery are poorly understood, mainly due to previous methodological challenges in the measurement of liver glycogen. However, developments in 13C magnetic resonance spectroscopy and its application to exercise metabolism research now allows for the non-invasive direct assessment of liver glycogen content and its dynamic changes in response to exercise and nutrition. This talk will present new developments and research insights into the role of liver glycogen in modulating metabolism during exercise and provide practical fuelling and recovery strategies to promote liver glycogen storage for the athlete.

DAY 03

WEDNESDAY, 17th DECEMBER 2025

14.00 – 15.30
Plenary Symposium
Chair: Dr Hans Braun

14.00 - 14.45

The Evolution of Sports Drinks

Dr Ian Rollo

Ian is principal scientist and head of GSSI international performance services and education engagements. His current role involves providing sports science and sports nutrition support for professional soccer clubs and organizations such as Manchester City FC, FC Barcelona and UEFA. His research is focused on sports nutrition and exercise physiology. Ian earned his Bachelors degree from Birmingham University in sport and exercise science and Masters degree from Loughborough University in Exercise Physiology. In 2009 he received a PhD from Loughborough University under the supervision of Professor Clyde Williams. In 2005 he worked at the August Krogh Institute, Denmark, assisting in studies on mechanisms of fatigue during high intensity exercise and optimizing nutritional strategies for soccer. Ian has previously served as a performance consultant in professional soccer, swimming and rugby. Dr Rollo is an honorary research fellow at Loughborough University. Ian also manages PepsiCo clinical research projects and is involved in developing novel technologies to support athletic performance. Finally, Ian leads the PepsiCo innovation team on healthy aging. He continues to author publications and deliver invited presentations globally.

ABSTRACT

The aim of this presentation will be to explore the scientific and practical journey of sports drink formulation. The pursuit of enhanced physical performance through hydration and nutrition is as old as sport itself. The evolution of sports drinks has been driven by advances in exercise physiology, nutrition science, as well as practical application. As such, the historical context, physiological principles and modern innovations for sports drinks will be discussed. Fundamentally, sports drinks are designed to optimise hydration and energy delivery around the exercise occasion. The inclusion of fluid, carbohydrate, sodium and other functional ingredients is guided by scientific evidence to enhance palatability, promote fluid retention, and support performance. This presentation aims to inspire innovation in sports drink development, whilst encouraging practitioners to apply evidence-based formulations to support athlete health and performance.

How much carbohydrate do athletes really need to consume during exercise?

14.45 - 15.30

Prof James Morton

James is a Professor of Exercise Metabolism at Liverpool John Moores University where he has authored over 220 research publications related to sports physiology, exercise metabolism and nutrition. From 2010-2015, he was the performance nutritionist to Liverpool FC and Nutrition and Physical Performance Lead for Team Sky between 2015 and 2019. In this role, he was responsible for the performance nutrition strategy for 5 consecutive Tour de France wins. James has also advised INEOS Sport, where he led the INEOS X programme with the remit of cross pollination of best practice on leadership, coaching, and performance support across the INEOS Sport portfolio. James is also the Chief Scientific Officer at Science in Sport (SiS) where he leads the Performance Solutions programme that encompasses the strategic delivery of bespoke performance solutions and innovation for SiS and their elite partners.

ABSTRACT

The effects of carbohydrate (CHO) intake on substrate metabolism, exercise capacity and exercise performance have been studied for over 100 years. From a metabolic perspective, the ergogenic effect of CHO intake is likely mediated by liver (and potentially muscle) glycogen sparing, maintenance of plasma glucose concentrations and whole-body CHO oxidation rates, such that the required exercise intensity can be sustained for a longer duration thereby delaying fatigue. Accordingly, the 2016 sport nutrition guidelines from the American College of Sports Medicine recommend CHO intakes of 30-60 g.h-1 (for endurance exercise and “stop and start” sport lasting 1- 2.5 h) and 90 g.h-1 (from multiple transportable carbohydrates e.g. glucose/fructose mixtures) for “ultra-endurance” >2.5 to 3 h in duration. However, although recent anecdotal reports reflect a trend for endurance athletes to consume (and experiment with) higher rates of CHO ingestion during training and racing (i.e. 120-200 g.h-1), the efficacy of such doses is not yet substantiated by current scientific research. Rather, contemporary research suggests that the guidelines for the upper limit of CHO intake could increase from 90 to 120 g.h-1 , considering that both exogenous and whole-body rates of CHO oxidation can be increased with these higher ingestion rates. Indeed, such absolute doses may also modulate important physiological determinants of performance (e.g. durability and economy) across cycling, marathon running and ultra-endurance exercise. Accordingly, this presentation will provide a contemporary review of CHO metabolism during exercise, factors affecting exogenous CHO oxidation rates (i.e. CHO blend, ratio, format, environmental considerations etc) and sport-specific research and insights from practice, before presenting an updated and more nuanced model to guide CHO personalisation strategies for endurance athletes. Directions for future research are also discussed, emphasising the need for collaborative research to study both male and female athletes during ecologically valid exercise protocols in order to better address the real-world fuelling challenges that are faced by elite athletes.