

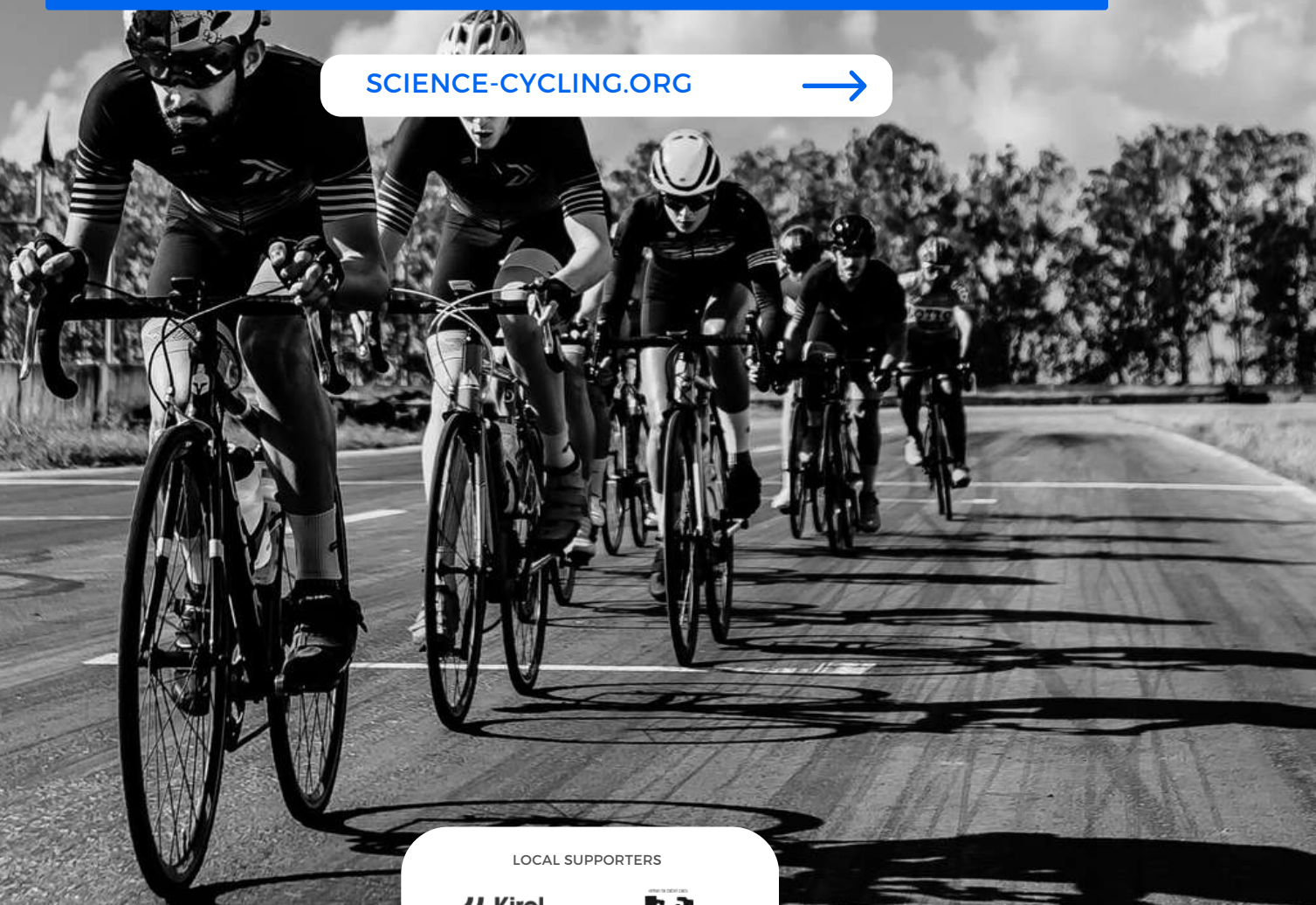


Science & Cycling

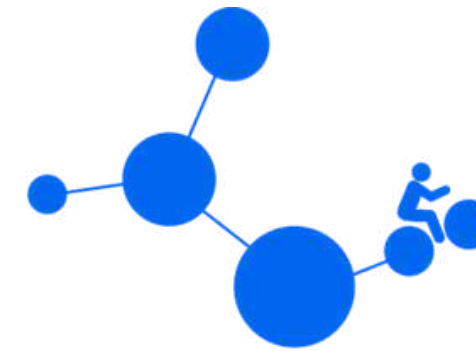
📅 28 - 29 June 2023

📍 Bizkaia Aretoa (Bilbao)

SCIENCE-CYCLING.ORG



LOCAL SUPPORTERS



Science & Cycling

28 - 29 EKAINA / JUNE / JUNIO 2023
Bizkaia Aretoa (Bilbao, Bizkaia)

Science & Cycling Frantziako Tourra hasi baino lehen egiteko tradizioa itzuli da.

Konferentzian, txirrindularitza lehiakorraren munduko adituek eta zientzialariek azken ikerketak eta esperientziak trukatu dituzte.

Hitzaldiarekin batera, esperientzia-plaza bat prestatuko da, non enpresek eta institutuek beren produktuen eta teknologien erakustaldiak egin ahal izango dituzten.

Science & Cycling is back to the tradition of taken place just before the start of the Tour de France.

During the conference experts from the competitive cycling world and scientists will exchange the latest research and experiences.

Alongside the conference an experience square will be set up in which companies and institutes can give demonstrations of their products and technologies.

Science & Cycling vuelve a la tradición de tener lugar justo antes del inicio del Tour de Francia.

Durante la conferencia, expertos del mundo del ciclismo competitivo y científicos intercambiarán las últimas investigaciones y experiencias.

Paralelamente a la conferencia se habilitará una plaza de experiencias en la que empresas e institutos podrán realizar demostraciones de sus productos y tecnologías.

**SARRERAK
TICKETS
ENTRADAS**



**EGITARAU
SCHEDULE
PROGRAMA**



**HITZALDIK ETA HIZLARIAK
FEATURED TALKS & SPEAKERS
PONENCIAS Y PONENTES**





Batzordeak nazioarteko hainbat aditu gonbidatuko ditu beren ezagutzak entzuleekin partekatzeraz.

The committee will invite a number of international experts to share their knowledge with the audience.

El comité invitará a varios expertos internacionales a compartir sus conocimientos con la audiencia.

ZUZENDARITZA BATZORDEA
STEERING COMMITTEE
COMITÉ DIRECTIVO

Sergio Seoane
Julio Calleja
Fred Grappe
James Hopker
Jon Iriberrri
Robert Lamberts
Bent Ronnestad
Stephen Seiler

HIZLARI NAGUSIAK
KEYNOTE SPEAKERS
PONENTES PRINCIPALES

Chris Abbiss, Edith Cowan University
David Barranco, European University Madrid
Menachem Brodie, Human Vortex Training
Louise Burke, Australian Catholic University
Robert Lamberts, Stellenbosch University
Dan Lorang, Bora-Hans Grohe Proteam
Iñigo san Millan, Team UAE Emirates
Iñigo Mujika, University of the Basque Country
Julien Périard, University of Canberra

MASTERCLASSAK
MASTERCLASSES
MASTERCLASSES

Menachem Brodie
Iñigo Mujika

KEYNOTE SPEAKERS



CHRISS ABBISS
Professor and associate Dean Research

Professor Chris Abbiss is the Dean of Graduate Research and responsible for leading the planning, governance and delivery of ECU's Higher Degree by Research programs at ECU. He is Professor of Exercise Physiology in the School of Medical and Health Sciences. His primary research interest centres on applied human physiology and exercise performance, with a focus on cycling, fatigue, thermoregulation, pacing strategies, training modalities and recovery. He collaborates with numerous national and international agencies, including the Australian Institute of Sport, Australian Sport Commission, Cycling Australia, Team BikeExchange, Western Australian Institute of Sport and others. He has published over 140 referred scientific journal articles in applied physiology and exercise science journals. His Scopus h Index is 32 with his research publications cited more than 3000 times. His research has been successful in attracting in excess of \$9M of grant funding from a variety of competitive funding sources.



MENACHEM BRODIE
Coach at Human Vortex Training

Menachem Brodie is a USA Cycling Expert Level coach, SICI certified bike fitter, and NSCA Certified Strength & Conditioning Specialist. For the last 10+ years he has been working with athletes from around the world to get fitter, faster, and stronger through strength training and in-sport training plans. He has presented on Strength Training for Cyclists & Triathletes internationally, and is the author of 2 authoritative online courses: Strength Training for Cycling Success, Strength Training for Triathlon Success both available on the TrainingPeaks University. He is also the developer for the worlds first Strength Training for Cyclists Certification course to be released winter 2019.



KEYNOTE SPEAKERS



DAVID BARRANCO
Professor of Cycling at University of Madrid

Professor of Cycling at the European University of Madrid. PhD in Physical Activity and Sport Sciences from the European University. Accredited as assistant professor and hired doctor and private university professor by the National Agency for Quality Assessment and Accreditation (ANECA). Principal Investigator of the Cycling Health and Performance (CH&P) Research Group of the European University of Madrid. Author of more than 30 international scientific publications in journals such as MSSE, IJSP, JSCR, IJSM, Frontiers in Physiology, IJERPH or JSMS. Member of the technical committee of health of the COLEF Council, Associate editor in the Open Access journals: "Journal of Science and Cycling" and "Frontiers in Physiology". Member of the Spanish Research Network on Sports Performance in Cycling and Women (REDICYM). Coordinator of the Technification Center of the Madrid Cycling Federation -UE of the junior and U-23 categories in the discipline of road cycling, National Cycling Coach (Level III, Royal Spanish Cycling Federation), physical trainer included in the Cofidis Paralympic Promises Program and physical trainer of cyclists and triathletes of various categories and specialties.



LOUISIE BURKE
Australian Catholic University

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.



ROBERT LAMBERTS
Professor in the Division of Movement Science and Exercise Therapy - Stellenbosch University

Professor Robert Lamberts is the head of Research at the Division of Movement Science and Exercise Therapy (MSET) at Stellenbosch University. In addition, he is the head of the Master and Doctoral Committee at the Department of Exercise, Sport and Lifestyle Medicine and is the departmental representative on the Committee of Postgraduate Research of the Faculty of Medicine and Health Sciences.

His primary interest is monitoring and fine-tuning training prescriptions in high-performance cycling, with a specific interest in fatigue and overreaching. He completed his PhD at the University of Cape Town, during which he developed the Lamberts Submaximal Cycle test. As an expert in the field of applied physiology in high-performance cycling, he serves as an associate editor at the International Journal of Sports Physiology and Performance. In addition, he is a board member of the European College of Sport Science, where he serves on the scientific committee.

In his role as an applied exercise physiologist, he has worked closely together with several world tour teams as well as national cycling associations. He has published over 100 peer-reviewed scientific journal articles, has a Scopus h index of 23 and has been cited over 2000 times.



JULIEN PERIARD
Professor at the University of Canberra Research Institute for Sport and Exercise (UCRISE)

Dr. Périard is a Research Professor and Deputy Director at the University of Canberra Research Institute for Sport and Exercise (UCRISE), where he leads the Environmental Physiology Research Laboratory. He is also an Adjunct Senior Lecturer at the University of Sydney and former Head of Research Operations for the Athlete Health and Performance Research Centre at Aspetar, Qatar. His scientific expertise lies in the area of environmental physiology where he uses an integrative research approach to examine the physiological mechanisms that mediate health and performance. Over the last decade Dr. Périard has studied fatigue during prolonged exercise in the heat, along with strategies to mitigate the influence of heat stress such as heat acclimation. He has worked with both amateur and professional athletes from various disciplines, along with National and International Federations (e.g. World Athletics, World Triathlon and UCI). He has authored over 85 research publications and book chapters, including a textbook on Heat Stress in Sport and Exercise. He has also presented at more than 60 international conferences. Dr. Périard is an Associate Editor for Front Physiol and has served as Guest Editor for the Br J Sports Med and Scan J Sci Med Sport.



KEYNOTE SPEAKERS



IÑIGO MUJIKA

Sport Physiologist, triathlon and swimming coach; Associate Editor for the International Journal of Sports Physiology and Performance; Associate Professor at the University of the Basque Country; Associated Researcher at Finis Terrae University

Iñigo Mujika earned Ph.D.s in Biology of Muscular Exercise (University of Saint-Etienne, France) and Physical Activity and Sport Sciences (University of The Basque Country). He is also a Level III Swimming and Triathlon Coach. Iñigo has exceptional ability to translate scientific research into every day coaching and advice for athletes and coaches. His main research interests include training methods and recovery, tapering, detraining, overtraining and nutrition. He has performed extensive research in physiology and performance in professional cycling, swimming, running, rowing, triathlon, tennis, football, rugby and water polo. Iñigo has published 181 articles in peer reviewed journals, six books and 45 book chapters, and has given 437 lectures and communications in international conferences and meetings. Iñigo was Senior Physiologist at the Australian Institute of Sport, Team Selector for Triathlon Australia, Head of Research and Development at Athletic Club Bilbao Professional Football Club, Physiologist of the Spanish and French Swimming Federations, Head of Physiology and Training at Euskaltel Euskadi World Tour Cycling Team, and Head of Sport Sciences and Performance Support at the Spanish Swimming Federation. He is now Advisor for the Japan High Performance Sport Center, Associate Professor at the University of the Basque Country, Adjunct Professor at Finis Terrae University in Chile, and Associate Editor for the International Journal of Sports Physiology and Performance. Having worked across multiple sports and countries in the domains of coaching, science, education and consulting, Iñigo brings unique perspectives on how individual athletes, teams and nations can best prepare for competition.



STEPHEN SEILER

Professor in Sport Science - University of Agder

After growing up in the US and earning his doctoral degree from the University of Texas at Austin, Stephen Seiler, PhD FACSM, has lived and worked in Norway for over 20 years as a university teacher, researcher, and leader. He is past Vice-Rector for Research and Innovation and past Dean of the Faculty of Health and Sport Sciences at the University of Agder in Kristiansand, Norway. Currently Dr. Seiler is Professor in Sport Science at the same institution. While anchored in an academic environment, Seiler has over the years served as research consultant and scientific advisor for a research foundation, sports teams, a regional hospital and the Norwegian Olympic Federation. From 2014 to 2019, professor Seiler served on the Executive Board of the European College of Sport Science, where he founded the Elite Sport Performance Special Interest Group in 2014.

Over the last 15 years, Seiler has become internationally known for his research publications and lectures related to the organization of endurance training and intensity distribution. This work has included both descriptive and experimental approaches, investigating cyclists, rowers, XC skiers, orienteers, and distance runners. His work has influenced and catalyzed international research around training intensity distribution and the "polarized training model". Seiler has published ~100 peer reviewed publications and written over 100 popular science articles related to exercise physiology and the training process. Professor Seiler has also given scientific lectures across Europe, the United States, China, South Africa, and Australia. He is also a founding editorial board member of the International Journal of Sport Physiology and Performance.

28 EKAINA JUNE JUNIO 2023

		HITZALDIA · CONFERENCE · CHARLA	HIZLARIA · SPEAKER · PONENTE
9:00	Mitxelena	Welcome & Opening	Anton van Gerwen - Event Organiser
9:15 - 10:40	Mitxelena	Development from a coach to Head of Performance (different tasks, challenges, positive and negative aspects etc)	Dan Lorang - BORA-hansgrohe Cycling Team
		The integration of a sports performance program to win the Tour de France	Iñigo San Millán - UAE Team Emirates
		What does it take to win a Giro Rosa or Giro d'Italia; differences and similarities between a male female and male Grand Tour winner	Robert Lamberts - Stellenbosch University
10:40	Lounge	Coffee break	
11:00 - 12:30	Mitxelena	Cycling under heat stress: performance implications and mitigation strategies	Julien Périard - University of Canberra
		Ventilation measurement during training: what does breathing tell us that heart rate does not?	Stephen Seiler - University of Agder
		'The influence of cycling mechanics on physiology'	Chris Abbiss - Edith Cowan University
12:30	Chillida	Lunch Break	
12:30 - 13:30	Axular	Posters presentations. Overview Posters Loes Stessens - KU Leuven - Estimation of Anaerobic Threshold with dynamic transfer function models based on heart rate and power in cycling Stefan Litzenberger - University of Applied Sciences Technikum Vienna - Longitudinal bending stiffness of cycling footwear - What is stiff enough? Chia-Shang Chen - Nat. Pingtung University of Science and Technology - The effect of symmetry monitoring system on lower limb muscle activation asymmetry in bike field test Gabriele Dell'Orto - Politecnico di Milano - Performances of bicycle tyres - effect of vertical load and inflation pressure	
13:30 - 14:10	Mitxelena	30 minutes isn't half an hour	Teun van Erp - Team Ineos Jonathan Wale
		Effects of acute hypoxia at rest exposure on time trial performance of national category cyclists	Jesus Torres - University of the Basque Country
14:10 - 15:20	Oteiza	Creatine supplementation during a training camp in young professional cyclists: a randomized controlled trial	Carlos Revuelta - European University Madrid
		Continuous Glucose Monitoring of Non-Diabetic Professional Cyclists during a Training Camp	Andrea Giorgi - Green Project Bardiani CSF Faizanè Professional Cycling Team
15:20	Lounge	Coffee Break	
15:40 - 17:30	Mitxelena	The physiology and the periodization of altitude training	Iñigo Mujika - University of the Basque Country
		How to apply different altitude training methods in coach practice?	Irina Zelenkova - University Zaragoza
		Optimizing the high-intensity interval session through workload alterations in well-trained female and male cyclists	Tomas Urianstad - Innland Norway University of Applied Sciences
		The higher fraction of VO2max during interval training, the greater gains in performance	Ingvill Odden - Innland Norway University of Applied Sciences
		Cycling performance after accumulated load: does durability change during a cycling season?	Jens Voet - VU Amsterdam
16:00 - 17:30	Oteiza	Chain wear and elongation in Elite cycling: a case study	Remi Aubert - Equipe Groupama FDJ
		Power loss of the chain drive in tandem bicycles	Albert Smit - KNWU
		The Correlation Between Pedaling Rate and Gross Efficiency of Road Bike Cycling	Liang-Sheng Huang - National Cheng Kung University
		Acute and chronic effects of training with a fixed gear on pedaling technique	Eneko Fernandez-Peña - University of the Basque Country
19:30 - 22:30	DGI Bien Restaurant	Location TBC	

29 EKAINA JUNE JUNIO 2023			
		HITZALDIA · CONFERENCE · CHARLA	HIZLARIA · SPEAKER · PONENTE
9:00 - 10:50	Mitxelena	Strength training for cyclists: Why are we missing the mark?	Menachem Brodie – Human Vortex Training
			Bent Ronnestad – Inland Norway University of Applied Sciences
		MMP and Torque - duration profiles from u19 cyclists and WT cyclists	Yann Bertron – University Savoy Mont Blanc
9:00 - 10:50	Oteiza	Automated PTZ framing of track cyclists using timing loops	Maarten Slembrouck – Ghent University
		Predicting performance in sub-10s f200 m male track sprint cyclists	Thomas Wackwitz – Griffith University
		Optimizing performance in cycling through machine learning	Tim Verdonck – University of Antwerp
		EFRT: A realistic model of human exercise, fatigue and recovery	Axel Finke – Loughborough University
		FTP in cycling: functional or fictional threshold power?	Kevin Caen – Ghent University
10:50	Lounge	Coffee Break	
11:00 - 12:30	Mitxelena	The use of velocity-based resistance training in cyclist. New perspectives on strength training in cyclists	David Barranco – European University Madrid
		Forum: How strong is strong enough – torque demands across cycling disciplines	John Wakefield – BORA-hansgrohe Cycling Team Chris Peden – Combined Athletic Performance Peter Leo – University of Innsbruck
12:30 - 13:40	Chillida	Lunch Break	
13:00 - 13:40	Axular	Poster presentations Loes Stessens – KU Leuven – Estimation of Anaerobic Threshold with dynamic transfer function models based on heart rate and power in cycling Stefan Litzberger – University of Applied Sciences Technikum Vienna – Longitudinal bending stiffness of cycling footwear – What is stiff enough? Chia-Shang Chen – Nat. Pingtung University of Science and Technology – The effect of symmetry monitoring system on lower limb muscle activation asymmetry in bike field test Gabriele Dell'Orto – Politecnico di Milano – Performances of bicycle tyres – effect of vertical load and inflation pressure	
13:30 - 15:30	Mitxelena	Rider Scouting: How do you identify future potential and compare prospective riders?	Daniel Green – Israel Premier Tech
		A short self-paced submaximal test to monitor endurance cycling fitness	Jules Cusson Fradet – University Quebec Trois Rivieres
		A Novel Submaximal Field Test of Fatigue Resistance in Professional Cyclists	Borja Martinez-Gonzalez – University of Bologna
		Physiological Characteristics Associated with W? and W?bal Used During Intermittent Exercise Task to Failure.	Alex Welburn – Loughborough University
13:40 - 15:30	Oteiza	Gender related differences in pressure distribution, pelvis movement and subjective perception during cycling	Sophie Richter – Vaude Sport
		Anterior saddle conflict in women cycling : a case study	Lucas Leblond
		To shuffle or not to shuffle	Callum Barnes – University of Kent
		Effects of test duration on pressure distribution, pelvic stability, and subjective perception in laboratory investigations for evaluating bicycle saddles and seat pads.	Stefan Schwanitz – Technical University Chemnitz
		Good Vibrations? An investigation examining the effects of speed, tyre pressure and wheel choice on whole-body vibrations	Will Dixon – University of Exeter
15:30 - 15:50	Lounge	Coffee Break	

> **EGITARAUJA** · SCHEDULE · PROGRAMA

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29 EKAINA JUNE JUNIO 2023

		HITZALDIA · CONFERENCE · CHARLA	HIZLARIA · SPEAKER · PONENTE
15:50 - 17:30	Mitxelena	State of the art in aerodynamic measurement : challenges and opportunities	Marc Graveline
		Digital twins to enhance cycling performance Techniques, roadmap and first results	Stijn Verwulgen – University of Antwerp
15:50 - 17:00	Oteiza	Will wearable sweat lactate sensors be the next big thing in cycling?	Kevin van Hoovels – Ghent University
		Low cost and personalized highlight generation during cycling races	Robbe Decorte – Ghent University

TOUR DE FRANCE. TEAM PRESENTATION

18:15	Conference venue and Guggenheim Museum	The team presentation of the Tour de France will consist of a small parcours from the Opera Building to the Guggenheim Museum	The riders will pass in front of the conference venue!
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> **MASTERCLASSAK** · MASTERCLASSES · MASTERCLASSES

27 EKAINA JUNE JUNIO 2023

		MASTERCLASSAK · MASTERCLASS · MASTERCLASS	HIZLARIA · SPEAKER · PONENTE
		Strength training for performance vs. strength training for recreation – Small changes to help your top athletes reach peak performance ;	Menachem Brodie – Human Vortex Training
		Specialized training strategies for cycling performance	Iñigo Mujika – University of the Basque Country

> **SARRERA** · REGISTRATION · ENTRADA

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INFORMATION

TERMS & CONDITIONS

PRIVACY STATEMENT

FULL CONFERENCE

- CONFERENCE PARTICIPATION
- COFFEE BREAKS
- LUNCHES
- CONFERENCE EVENING
- ABSTRACTS
- PRESENTATIONS

1 DAY CONFERENCE

- CONFERENCE 1 DAY
- COFFEE BREAKS
- LUNCH
- CONFERENCE EVENING
- ABSTRACTS
- PRESENTATIONS

MASTERCLASSES

- MASTERCLASS 1 DAY
- COFFEE BREAKS
- LUNCH
- CONFERENCE EVENING
- MASTERCLASS HANDOUT
- PRESENTATIONS

