



Programme

AUDITORIUM

14:00 | Open Ceremony

José Manuel Silva, Mayor of Coimbra
Amílcar Falcão, Rector of University of Coimbra
Fernando Gomes, President of Portugal Football Federation
António Figueiredo, chair of the WCSS 2022

★ 15:00 | Keynote Presentation

Chair: Duarte Araújo - Faculty of Human Kinetics
How the theory of Ecological Dynamics has shaped Research and Practice in Soccer in the new Millennium
Keith Davids | Sheffield Hallam University

16:00 | Discussion Panel

Chair: Germano Almeida - Portuguese Football Federation
New trends to keep merging science and practice
Pedro Dias, Directive Board Member of Portugal Football Federation
Jorge Braz, Head Coach of futsal of the Portuguese National Team
Hans Leitert, UEFA Technical Observer

☕ 17:00 | Coffee-Break and Poster Presentation

17:30 | Neuroexcellence Talk | Exploring flywheel and bio-feedback in football neuromuscular training
"Aiming at enhancing performance & increase training availability- sharing ideas about periodization"
Andrea Azzalin



18:15 | Symposium 1 | Perception and Action in Soccer: New Insights

Chair: Duarte Araújo, FMH
The effect of physical workload on gaze behavior of soccer defenders: an in situ approach | Filipe Casanova
The impact of penalty takers' footedness on goalkeepers' performance during a penalty: A field study in soccer | Filipe Casanova
Spatial vision occlusion in youth football: an exploratory training intervention | Pedro Esteves, Instituto Politécnico da Guarda
Characterizing Eye Movement Patterns in 1v1 Situations in Elite Futsal | Bruno Travassos, University of Beira Interior

ALMEDINA

17:30 | Parallel Oral Sessions 1 | Futsal

Chair: Bruno Travassos
Seasonal Changes in Neuromuscular Performance in Elite Futsal Players | Konstantinos Spyrou, Centro de Investigación Alto Rendimiento Deportes (CIARD), UCAM, Murcia, Spain
How weekly monitoring variables influence players and teams' match performance in elite futsal | João Nuno Ribeiro, Department of Sport Sciences, University of Beira Interior, Covilhã, Portugal; Research Centre in Sport Sciences, Health Sciences and Human Development, CIDESD, CreativeLab Research Community, Vila Real, Portugal
The effect of different high-intensity activity properties on interchange player rotation in Futsal - An analysis by playing position | João Nuno Ribeiro, Department of Sport Sciences, University of Beira Interior, Covilhã, Portugal
Effects of warm-up duration on physical performance of futsal players | Nuno Silva, Research Center in Sports Science, Health Sciences and Human Development, CIDESD, University of Maia, Maia, Portugal
Effects of different warm-up strategies during match in futsal non-starting players: a case report | Nuno Silva, Research Center in Sports Science, Health Sciences and Human Development, CIDESD, University of Maia, Maia, Portugal

SOFIA

17:30 | Parallel Oral Sessions 2 | Recovery and Readiness

Chair: Liam Harper
How the climatic conditions forecast for the FIFA World Cup in Qatar 2022 will affect on the physiological and psychomotor responses of soccer players | Paweł Chmura, Wrocław University of Health and Sport Sciences
The reliability and sensitivity of post-match neuromuscular measures in elite youth soccer players | Alberto Franceschi, Sport Science and R&D Department, Juventus Football Club, Torino, Italy; School of Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, United Kingdom
Physiological and immunological responses in young soccer players | Luis Rama, University of Coimbra, Research Center for Sport and Physical Activity, Faculty of Sport Sciences and Physical Education, Coimbra, Portugal
Relationship between internal and external training load metrics on neuromuscular performance | Kieran Collins, TU Dublin, Dublin, Ireland
The Short-term Relation Between Load and Psychophysiological Responses in Invasion Sports: A Meta-Analysis | Jur Brauers, Center for Human Movement Sciences, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands
A case study comparing sleep in shared and individual rooms during a training camp in elite youth soccer players | Júlio Alejandro Henriques da Costa, Portugal Football School, Portuguese Football Federation, FPF, Oeiras, Portugal
Prevalence of poor sleep quality, sleepiness, and insufficient sleep duration in soccer players: A pilot study | Lúcio Cunha, Research Center in Sports Sciences, Health Sciences and Human Development, CIDESD, University of Maia, Maia, Portugal

MONDEGO

17:30 | Parallel Oral Sessions 3 | Testing

Chair: Jaime Sampaio
Effects of preferred leg on the peak acceleration, deceleration, and speed on 5-0-5 change-of-direction test: a cross-sectional study conducted in adult male soccer players | Filipe Manuel Clemente, Escola Superior Desporto e Lazer, Instituto Politécnico de Viana do Castelo, Portugal
Using the heart rate ratio method to estimate maximal oxygen uptake in recreational male footballers | Susana Póvoas, Research Center in Sports Sciences, Health Sciences and Human Development, CIDESD, University of Maia, ISMAI, Maia, Portugal; Department of Sports Science and Clinical Biomechanics, SDU Sport and Health Sciences Cluster (SHSC), University of Southern Denmark, Odense, Denmark
Using Submaximal Exercise Heart Rate for Monitoring Cardiorespiratory Fitness Changes in Youth Soccer Players | Stefan Altmann, Karlsruhe Institute of Technology, Germany; TSG ResearchLab, Germany
Validation of the Université de Montréal Track Test and a Set Distance 1500 m Time Trial to Assess Maximal Aerobic Speed in Soccer | Maximiliane Thron, Department for Performance Analysis, Institute of Sports and Sports Science, Karlsruhe Institute of Technology, Karlsruhe, Germany
Mechanical Power in Team Sports | Pietro Enrico di Prampero, Department of Sport Science Exello srl, Udine, Italy
Mechanical Power in Soccer: overcome the limits of acceleration alone | Pietro Enrico di Prampero, Department of Sport Science Exello srl, Udine, Italy



19:15 | Welcome Reception



08:00 | Registration

University of Coimbra Stadium

08:30 | Practical Workshop Football

Training the Defensive Organization and Offensive Transitions Moments.
Portuguese Football Federation Youth Identity
Rui Bento and Daniel Barreira

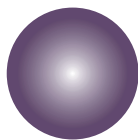
Organized by the Technical Staff of the Portuguese Football Federation

University of Coimbra Stadium

08:30 | Practical Workshop Futsal

The dialectical attack-defense relationship:
The creation of specific training contexts
Ricardo Azevedo

Organized by the Department of Sport Performance of Portuguese Football Federation



20:00 | Congress Dinner

Afonso Henriques (Old Chapel)

AUDITORIUM



10:00 | Keynote Presentation

Chair: Antonio Tessitore - Università di Roma "Foro Italico"

The impact on sports medicine of deciphering the human genome and necessary genetic revolution

Yannis Pitsiladis | University of Brighton



11:00 | Coffee-Break | Foyer

11:30 | Parallel Oral Sessions 4 | Injuries

Chair: Fabio Serpiello

Unilateral vertical jump can highlight motor disorders related to previous injuries in soccer players | Rufin Boumpoutou, *Stade Rennais Football Club, Rennes, France*

Epidemiology of lower extremity muscle injuries in professional German football: a prospective study of seven consecutive seasons | Ida Bo Steendahl, *Institute of Sports and Preventive Medicine, Saarland University, Saarbrücken, Germany*

Can speed variables predict the odds ratio and relative risk of non-contact injuries in soccer players? A prospective study | Elena Mainer Pardo, *University of San Jorge, Zaragoza, Spain*

Are Off-Field Activities an Underestimated Risk for Hamstring Injuries in Dutch Male Amateur Soccer Players? An Exploratory Analysis of Prospective Cohort Study | Jur Brauers, *Center for Human Movement Sciences, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands*; 2 Department of Rehabilitation, Physical Therapy Science and Sports, Utrecht University, University Medical Center Utrecht, Brain Center, Utrecht, The Netherlands

Incidence and characteristics of heading in youth football (soccer) | Rebecca Schnitker, *Institute of Sports Medicine, Department of Sports and Health, Paderborn University, Paderborn, Germany*

Influence of environmental temperature on injury occurrence in professional German football (soccer) | Edgar Schwarz, *Saarland University, Saarbrücken, Germany*



13:00 | Lunch | Conventual Room



14:00 | Keynote Presentation

Chair: André Seabra - Portuguese Football Federation

Let's keep players on the pitch: applied science in elite soccer

João Brito | Portugal Football School, Portuguese Football Federation

15:00 | Parallel Oral Sessions 8 | Match analysis II

Chair: Fabio Nakamura

Moving towards a comprehensive analysis of acceleration profiles in elite youth football | Damian Kovacevic, *Victoria University, Melbourne, Australia*

Can the coach dismissal impact on match physical demands? An across both the short and the long-term perspective | José Carlos

Ponce Bordón, *University of Extremadura, Faculty of Sport Sciences, Cáceres, Spain*

Associations between running activities and odds of scoring goals during professional soccer matches | Marco Martin, *Mapei Sport Research Centre, Olgiate Olona, Italy*

A New Approach to Compare Training and Soccer Match demands | Mauro Mandorino, *Performance and Analytics Department, Parma Calcio 1913, Parma, Italy*; Department of Movement, Human and Health Sciences, University of Rome "Foro Italico", Rome, Italy

Match-play running performance in elite Spanish soccer: A comparison between the first and second leagues considering the opposition's quality | Javier Fernandez-Navarro, *Nottingham Trent University, Nottingham, UK*

Characterizing the Most Demanding Periods of High Intensity Activity in Elite Football Using a Multivariate Approach | Farzad Yousefian, *Research Center in Sports Sciences, Health Sciences and Human Development (CIDESD), Department of Sport Sciences, University of Beira Interior, Covilhã, Portugal*; Portugal Football School, Portuguese Football Federation, Oeiras, Portugal

In week-to-week forecasting of individual match actions in football, age matters, and less data is more | He Qixiang, *National Institute of Education, Nanyang Technological University, Singapore*



16:30 | Coffee-Break and Poster Presentation

17:00 | Symposium 2 (English FA) | Developing a research model to support evidence informed practices on the England Lionesses' Talent Pathway

Chair: Stacey Emmonds

Understanding the differences between training/ micro-cycle outputs of technical and possession based statistics compared to match play in women's football | Steve Barrett, *Playmaker, UK*

Locomotor and Technical Characteristics of Female Soccer players training: Exploration of differences between competition standards | Stacey Emmonds, *Leeds Beckett University, UK*

Applying Feature Selection Methods to Identify Unique Technical and Physical Performance Indicators within Women's Football | Nick Dalton-Barron, *Leeds Beckett University, UK*

The Football Association Physical Profiling and Injury Surveillance Project: The Development of a database and system English Elite Youth Female Soccer Academies | Jake Beech, *Carnegie School of Sport, Leeds Beckett University, Leeds, UK and The Football Association, Burton-Upon-Trent, UK*

The differences in anthropometric, growth, maturation, and physical qualities between injured and un-injured elite youth Female Soccer players | Jake Beech, *Carnegie School of Sport, Leeds Beckett University, Leeds UK. The Football Association, Burton-Upon-Trent, UK*

A latent variable conceptual model of the training process in female team sport athletes | Dan Weaving, *Leeds Beckett University, UK*

A multi-club analysis of the locomotor training characteristics of elite English female soccer players | Naomi Myhill, *Leeds Beckett, The FA, UK*

ALMEDINA

11:30 | Parallel Oral Sessions 5 | Match Analysis I

Chair: Nic James

Calculating a per second 'goal threat' value in football using player and ball locations | Nimai Parmar, *London Sport Institute, Faculty of Science and Technology, Middlesex University, London, UK*

Analyzing physical performance during successful open-play and counterattacks in professional football | Floris Goes, *Department of Human Movement Sciences, University of Groningen, University Medical Center Groningen, The Netherlands*

The use of player tracking data to analyze defensive play in professional soccer - A scoping review | Leander Forcher, *Institute of Sports and Sports Science (IfSS), Karlsruhe Institute of Technology (KIT)*

In-Game Formation Changes as Momentum Shift: The Influence of In-Game Changes in Tactical Formation in Professional Soccer | Leon Forcher, *Institute of Sports and Sports Science, Karlsruhe Institute of Technology, Karlsruhe, Germany*

Degeneracy in Soccer: Association Between Inter-Team Movement Variability Shows the Highly Adaptive Behaviour of Players During the Match | Daniel Carrilho, *CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal*



13:00 | Lunch | Conventual Room

15:00 | Parallel Oral Sessions 9 | Small Sided Games II

Chair: João Pedro Duarte

Small, medium and large-sided games: the effect of pitch dimensions and team size on acceleration demands in train | Sigrid Olthof, *Liverpool John Moores University, Liverpool, United Kingdom*

Exploring the effects of pitch obstacles on external load and technical performance during football large-sided games | Diogo Coutinho, *Department of Sports Sciences, Exercise and Health, University of Trás-os-Montes and Alto Douro, Vila Real, Portugal*; Research Center in Sports Sciences, Health Sciences and Human Development, CIDESD, CreativeLab Research Community, University Institute of Maia, ISMAI, Maia, Portugal

High-speed running and sprinting in professional adult soccer players: methodological definitions, match demands and training recommendations. A systematic review | Antonio Gualtieri, *Sport Science and R&D Department, Juventus Football Club, Torino, Italy*; School of Health and Sports Sciences, University of Suffolk, Ipswich, UK

Comparison of the effects of a combined intervention of small-sided games and high-intensity interval training vs. high of youth soccer players: a parallel study design | Mohammad Faramarzi, *Department of Exercise Physiology, Faculty of Sport Sciences, University of Isfahan, Isfahan*

Training Load Variations During Small-Sided Games in Soccer: The Influence of Recovery Time | Luis Branquinho, *Higher Institute of Educational Sciences of the Douro, Penafiel, Portugal*

Design and reliability of an observational tool to evaluate the individual offensive behavior in soccer (INDISOC) | Joaquín González-Rodríguez, *Centre for Sport Studies, Rey Juan Carlos University, Madrid, Spain*



08:00 | Registration

University of Coimbra Stadium

08:30 | Practical Workshop

Football

Training the Defensive Organization and Offensive Transitions Moments.

Portuguese

Football Federation Youth Identity

Rui Bento and Daniel Barreira

Organized by the Technical Staff of the Portuguese Football Federation

University of Coimbra Stadium

08:30 | Practical Workshop

Futsal

The dialectical attack-defense relationship:

The creation of specific training contexts

Ricardo Azevedo

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20:00 | Congress Dinner

Afonso Henriques (Old Chapel)

ALMEDINA



16:30 | Coffee-Break and Poster Presentation

17:00 | Symposium 3 | Innovations and developments in science and soccer from an Ecological Dynamics perspective since 2000

Chair: Keith Davids

Science and Futsal - Advances from ecological dynamics | Bruno Travassos, Universidade da Beira Interior, Department of Sport Sciences, Covilhã, Portugal; Research Center in Development, CIDESD, CreativeLab Research Community, Vila Real, Portugal; Portugal Football School, Portuguese FA

Advances in ecological dynamics and soccer research: What does the future promise? | Duarte Araújo, Faculdade Motricidade Humana, Lisboa, Portugal

Practical applications of ecological dynamics in professional football fi achievements, opportunities and challenges! | Pedro Silva, CIFI2D - Centro de Investigação, Formação, Inovação e Intervenção em Desporto - Universidade do Porto, Portugal

How bi-directional synergy formation informs training designs | João Ribeiro, Faculdade de Desporto da Universidade do Porto (FADEUP) & Universidade Lusófona do Porto (ULP), Portugal

Nonlinear Pedagogy and Soccer | Jia Yi Chow, National Institute of Education, Nanyang Technological University, Singapore

"We just want consistency": What do players and coaches need to know about how referees make decisions? | Ian Renshaw, School of Exercise & Nutrition Sciences, Faculty of Health, Queensland University of Technology, Brisbane, Queensland, Australia

A Department of Methodology can Enhance Scientist - Practitioner Integration | Martyn Rothwell, Sheffield Hallam University, UK

SOFIA

11:30 | Parallel Oral Sessions 6 | Youth Development / Strength & Conditioning

Chair: Antonio Tessitore

'He's Got Growth': Coaches Understanding and Management of the Growth Spurt in Male Academy Football | Megan Hill, Leeds Beckett University, Leeds, United Kingdom

Growth, maturation and short-term power output profile in youth soccer players | João Bruno, University of Coimbra, FCDEF, Portugal

Hip strength of adductors and abductors in elite youth soccer players according to age and maturity status | Maros Kalata, Sport Research Center, Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic

Variation within Bio-Banded Groups | Jan M. Konarski, Poznan University of Physical Education

Using deadlifts as post-activation performance enhancement strategy in warm-ups in football | Diogo Coutinho, CIDESD (Centro de Investigação em Desporto, Saúde e Desenvolvimento Humano) e UTAD (Universidade de Trás-os-Montes e Alto Douro), Universidade da Maia (ISMAI), Portugal

Investigation of the effects of eight weeks trx exercises on some motorical abilities and in football players | Alper Kartal



13:00 | Lunch | Conventual Room

15:00 | Parallel Oral Sessions 10 | Talent identification & Sports Psychology

Chair: Tomás García-Calvo

Talent and Expertise Research in Football: a review | João Roquette, CIPER, Faculdade de Motricidade Humana, Lisboa, Portugal

Talent Identification within Scottish Football -Understanding the physical and technical outputs for successful players | Mike King, University of the West of Scotland

How do scouts identify talented soccer players? | Ruud den Hartigh, University of Groningen, Groningen, the Netherlands

Soccer players and other athletes: Assets development, Enjoyment and Sport Attitudes | Artur Santos, Centre of 20th Century Interdisciplinary Studies of the University of Coimbra, Coimbra, Portugal

The role of action capabilities for decision making in football | Daniel Müller, Vrije Universiteit Amsterdam, the Netherlands

Why are they always older and stronger? Relative Age Effect and Talent Identification factors in youth elite soccer play | Krystian Rubajczyk, University School of Physical Education in Wrocław, Poland



16:30 | Coffee-Break and Poster Presentation

17:00 | Myocene Talk | Objective measurement of muscle fatigue with Myocene: new dimension in physical training

Prof Guillaume Millet, Raphaël Ravet



MONDEGO

11:30 | Parallel Oral Sessions 7 | Small Sided Games I

Chair: Pedro Figueiredo

Area per player to replicate official match demands in U-18 elite Spanish soccer player: a replicational study | Vicente De Dios, Performance Department, Real Club Celta de Vigo, Vigo, Spain, 2Faculty of Education and Sport Sciences, University of Vigo, Pontevedra, Spain

Soccer-drill specificity in top-class players with reference to peak match demands | Andrea Riboli, Department of biomedical sciences for health, Università degli Studi di Milano, Milan, Italy

Technical demands in elite soccer: manipulating area per player during small-sided games to replicate official match demands | Andrea Riboli, Università degli Studi di Milano, Milan, Italy

The effects of goal manipulations on tactical and technical performance in U-17 football small-sided games | Paulo Pereira, Department of Sports and Health, School of Health and Human Development, Évora, Portugal; Comprehensive Health Research Centre (CHRC), University of Évora, Évora, Portugal

The effects of floaters location on tactical, physical, and technical performance during offensive ball possessions in football small-sided games | João Teixeira, Department of Sports and Health, School of Health and Human Development, Évora University, Évora, Portugal; Comprehensive Health Research Centre (CHRC), Évora University, Évora, Portugal; Portugal Football School, Portuguese Football Federation, Oeiras, Portugal

13:00 | Informal Session | Career planning for MSc and PhD students

Chair: Terence Favero, Aaron Coutts, Barry Drust, António Figueiredo



13:00 | Lunch | Conventual Room

15:00 | Parallel Oral Sessions 11 | Coaching

Chair: André Roca

Decision-making practices during coaching sessions in grassroots youth soccer: A mixed-methods investigation | André Roca, Research Centre for Applied Performance Sciences, Faculty of Sport, Allied Health and Performance Science, St Mary's University, Twickenham, London, UK

The Understanding, perceptions and practices of Neuroathletic training in German Football | Cameron Daniel Scullard, The Institute for Sports and Preventative Medicine, Saarland University, Saarbrücken, Germany

Developing creativity-supportive learning environments in youth football players | André Marinho, Universidade da Maia - ISMAI, Portugal

Effects of Didactic Model Game Action Competences and Didactical Model of Direct Instruction on indexes Performance tactical in U-12 Soccer Players | Wilder Valencia, Universidad de Antioquia, Medellín-Colombia

Current view and new perspectives on skill in football | Jani Sarajärvi, University of Lisbon, Lisbon, Portugal

Goal-Directed Behavior? Enhancing Representativeness In Soccer Training | Albert Deuker, German Sport University Cologne, Germany



16:30 | Coffee-Break and Poster Presentation

17:00 | Practical Workshop | Match Analysis

Observation and Analysis in Portuguese Nacional Teams - A practical example | André Reis, José Pedro, Pedro Matias, Organized by the department of sport Performance of Portuguese Football Federation



08:00 | Registration

University of Coimbra Stadium

08:30 | Practical Workshop

Women's Football

Offensive Organization and Defensive Transition - An example of approach in the Women's National Teams

Marisa Gomes, Bernardo Carapau, Ricardo Tavares

Organized by the Technical Staff of the Portuguese Football Federation



Auditorium

17:15 | Closing Ceremony

Carlos Lopes, *Councillor of the Coimbra City Council*

Pedro Ferreira, *Dean of the Faculty of Sport Sciences*

Terence Faverio, *AFC Steering Group*

António Figueiredo, *Chair of the WCSS 2022*

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AUDITORIUM



10:00 | Keynote Presentation

Chair: Terence Faverio - University of Portland

Football is medicine: Prescribing football for global health promotion

Peter Krstrup | *University of Southern Denmark*



11:00 | Coffee-Break and Poster Presentation | Foyer

11:30 | Parallel Oral Sessions 12 | Match Analysis III

Chair: Nimal Parmar

Evaluating the use of the high press in the English Premier and K Leagues using Passes Per Defensive Action | Nic James, *London Sport Institute, Faculty of Science and Technology, Middlesex University, London, UK*

Analysing Team Dynamics to Explain Team Physical Performance in Elite Football | Farzad Yousefian, *Research Center in Sports Sciences, Health Sciences and Human Development (CIDESD), Departm Interior, Covilhã, Portugal; Portugal Football School, Portuguese Football Federation, Oeiras, Portugal*

Visualizing Performance Dynamics of Soccer Players in Personalized Networks | Niklas D. Neumann, *Department of Psychology, University of Groningen, Groningen, the Netherlands*

Do professional soccer teams run the same throughout the season? Relationship with team performance | José C. Ponce-Bordón, *University of Extremadura, Faculty of Sport Sciences, C-eres, Spain*

Analysis of Spanish La Liga Soccer Players' Performance before Signing a New Contract | Feng Runze, *Faculty of Physical Activity and Sport Sciences, Technical University of Madrid, Madrid, Spain*

An innovative approach to the analyses of football player running profiles | Paulo Roriz, *University of Maia, Maia, Portugal*



13:00 | Lunch | Conventual Room

14:00 | Parallel Oral Sessions 17 | Perception and action

Chair: Filipe Casanova

Multiple Players Tracking in Virtual Reality: influence of soccer specific trajectories and relationship with gaze activity | Alexandre Vu, *Univ Rennes, Inria, M2S -EA 7470, F-35000 Rennes, France*

Nature Environments can Enhance Skill and Performance in Football | Henrique Brito, *CIPER (Interdisciplinary Center for the study of Human Performance), Faculdade de Motricidade Humana, Lisboa, Portugal*

Football, beyond the field of vision | Maria do Perpetuo Socorro Sarmiento Pereira, *IFPA Tucuruí, Brazil*

Football scenes unseen consciously but seen unconsciously: Decision-making capability is predicted by unconscious perceptual information pick-up | David Mann, *Vrije Universiteit Amsterdam, the Netherlands*

15:00 | Parallel Oral Sessions 20 | Match analysis IV

Chair: Antonio Tessitore

In-match penalty kick analysis of the German Bundesliga | Guilherme de Sousa Pinheiro, *Kinexon Sports & Media GmbH*

Illustrating a Landscape of Shooting Opportunities in Soccer | Ilias Loutfi, *Faculdade de Motricidade Humana, Portugal*

Evaluation of Off-the-Ball Actions in Soccer | Tim Swartz, *Simon Fraser University, Canada*

Will he play like we thought? Effect of player role variability on adaptation and sustainability of football performance | John Komar, *Physical Education and Sports Science, National Institute of Education, Nanyang Technological University, Singapore*

How the COVID-19 Pandemic has Changed the Game of Soccer | Daniel Link, *Technical University Munich, Germany*

16:15 | Playermaker Talk | Playing forward, square or back: which direction are we going with science and football?

Barry Drust, *University of Birmingham, UK*

playermaker

17:15 | Closing Ceremony

Carlos Lopes, *Councillor of the Coimbra City Council*

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ALMEDINA

11:30 | Parallel Oral Sessions 13 | Sports Psychology

Chair: Tomás García-Calvo

Self-controlled feedback improves perceived competence and movement execution in soccer players | Eline Nijmeijer, *Department of Human Movement Sciences, University Medical Center Groningen, University of Groningen, The Netherlands*

The use of positive or negative feedback changes the physical and mental efforts of soccer players during trainings | Jesús Díaz-García, *Faculty of Sport Sciences, University of Extremadura, Spain*

An overview of Sports Psychiatry and its application in Football | Paulo Sousa Martins, *Hospital de Magalhães Lemos, EPE, Portugal*

In the Context of a Sports Match, the Goal to Win is Most Important, Right? Evidence for a Hierarchical Achievement Goal System | Nico W. Van Yperen, *University of Groningen, the Netherlands*

Play a play-offs phase increases the mental fatigue of semi-professional soccer players | Jesús Díaz-García, *Faculty of Sport Sciences, University of Extremadura, Spain*

Resilience in soccer: A multidisciplinary, dynamic, and personalized approach | Ruud den Hartigh, *University of Groningen, Groningen, the Netherlands*



13:00 | Lunch | Conventual Room

14:00 | Parallel Oral Sessions 18 | Refereeing

Chair: Pawel Chmura

Virtual Reality (VR) as a training method for football referees | David Mann, *Vrije Universiteit Amsterdam, Amsterdam, The Netherlands*

VAR incidents affect negative sentiment of fans of the English Premier League on Twitter | Otto Kolbinger, *Technical University of Munich, Munich, Germany*

Effect of Video-Based Training on Soccer Referees' Decision Making: A Meta-Analysis | Yeqin Zhang, *China Football College, Beijing Sport University, Beijing, China*

14:45 | Parallel Oral Sessions 21 | Biomechanics

Chair: Luis Rama

Exploration of reactive and preplanned components of agility in elite soccer players: a new biomechanical assessment approach |

Anthony Sorel, *Univ Rennes, Inria, M2S -EA7470, F-35000 Rennes, France*

Discriminative power of an inertial sensor Bram Bastiaansen setup to quantify biomechanical load between national and regional male soccer players | Bram Bastiaansen, *Center for Human Movement Sciences, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands*

Biomechanical analysis of hamstring injury history on biomechanical deficits during a reactive functional test in professional soccer players | Anthony Sorel, *Univ Rennes, M2S -EA 7470, F-35000 Rennes, France*



08:00 | Registration

University of Coimbra Stadium

08:30 | Practical Workshop

Women's Football
Offensive Organization and Defensive Transition - An example of approach in the Women's National Teams
Marisa Gomes, Bernardo Carapau, Ricardo Tavares
Organized by the Technical Staff of the Portuguese Football Federation



Auditorium

17:15 | Closing Ceremony

Carlos Lopes, *Councillor of the Coimbra City Council*
Pedro Ferreira, *Dean of the Faculty of Sport Sciences*
Terence Favero, *AFC Steering Group*
António Figueiredo, *chair of the WCSS 2022*

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● SOFIA

11:30 | Parallel Oral Sessions 14 | Monitoring

Chair: Bruno Travassos

Test-Retest Reliability and Construct Validity of Hip Load Compared to Playerload During Football Specific Running, Kicking and Jumping Tasks | Erik Wilmes, *Amsterdam Movement Sciences, Department of Human Movement Sciences, Faculty of Behavioural and Amsterdam, the Netherlands*
Training Load Variables in Elite Youth Soccer: Is a Data Reduction Approach consistent across different age groups? | Darragh Connolly, *Sport Science and R&D Department, Juventus Football Club, Torino, Italy*
The dose-response relationship between training load measures and changes in force-time components during a coun soccer players | Matthew Ellis, *Newman University, UK*
Pathways for measuring perceived exertion-recovery state in under-19 young football players: an observational and prospective cohort study | Luis Branquinho, *Higher Institute of Educational Sciences of the Douro, Penafiel, Portugal*
Relationships between selected strength parameters and match-related running speed performance in young elite soccer players | Matej Varjan, *Sport Research Center, Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic*
How do young soccer players train? A 5-year analysis of elite academy players weekly training load and its distribution across a micro-cycle | Darragh Connolly, *Sport Science and R&D Department, Juventus Football Club, Torino, Italy*
COVID-19 lockdown in Italian Serie-A male football players: Was there a silver lining for players physical fitness and body-composition? Maurizio Fanchini, *AS Roma Football Club, University of Verona, Italy*

📺 13:00 | Lunch | Conventual Room

14:00 | Parallel Oral Sessions 19 | Small Sided Games III

Chair: Filipe Clemente

Soccer players' tactical performance in small-sided games according to positional role | Wilder Geovanny Valencia Sánchez, *Universidad de Antioquia, Colombia*
Effects of modifying the number of targets on the individual offensive behavior during small-sided games in youth soccer players | Joaquin González-Rodenas, *Centre for Sport Studies, Rey Juan Carlos University, Madrid, Spain*
Effects of small-sided games on physical abilities in youth soccer players of Club Deportivo Ferroviários | Jorge Luis Salazar Martinez, *Universidad de Antioquia, Colombia*
Cardiac parasympathetic reactivation after small-sided soccer games and repeated sprints in untrained healthy adolescents | Amri Hammami, *Laboratory of physiology, faculty of medicine Sousse, Sousse, Tunisia*

15:00 | Parallel Oral Sessions 22 | Sports Sociology

Chair: Artur Santos

But where did they go? | Arthur Hochedé, *UREPSSS -ULR7369 -Laboratoire Shergas, France*
The Features and Mission of the Chinese Football Association Youth Training Outline: A Brief Introduction | Yejin Zhang, *China Football College, Beijing Sport University, Beijing, China*
Equality is everyone's job: An exploration of the lived experiences of British South Asian people working in manageria football in England Scotland | Stefan Lawrence, *Newman University, UK*
Exploring perceptions of loneliness amongst the migrant professional footballers community | Adele Muscat, *University of Malta, Malta*

● MONDEGO

11:30 | Parallel Oral Sessions 15 | Technology and Data Science

Chair: Pedro Figueiredo

Unpacking a football team - profile and contribution of the players that allow outplaying more opponents in 2022 UEFA Champions League (UCL) season | André Oliveira, *University of Maia, Maia, Portugal, 2Sports Analytics Lab, Maia, Portugal*
Applying Machine learning algorithms to study Tactical behavior in Football | Sofia Fonseca, *CIDEFES, Lusofona University, Lisbon, Portugal*
Managerial Artificial General Intelligence (MAGI) for football: what could go wrong? | Scott McLean, *Centre for Human Factors and Sociotechnical Systems, University of the Sunshine Coast, Australia*
Coach, I don't feel it today - A Machine Learning approach for early in-game performance prediction | Matthias Kempe, *University of Groningen, the Netherlands*
Sahka - Individual Soccer Coaching Technology | Markus Bergum Hilbertsen, *UiT The Arctic University of Norway, Norway*

📺 13:00 | Lunch | Conventual Room

14:45 | Parallel Oral Sessions 23 | Health & Nutrition

Chair: Susana Póvoas

A comparative study on the intensity of walking and recreational football for older adults | Sophie Mowle, *Coventry University, UK*
Effects of football training on health-related physical fitness measures in male adolescents | Amri Hammami, *Laboratory of physiology, faculty of medicine of Sousse, Tunisia*
Who is in control of anti-doping in soccer in Australia? | Mitchell Naughton, *Centre for Human Factors and Sociotechnical Systems, University of the Sunshine Coast, Sippy Downs, QLD, Australia*
Relationships between in-game athletic performances and fat and carbohydrates oxidation rates in young elite soccer players | Arthur Guillotel, *Stade Rennais Football Club, Rennes, France*
Nutritional support in elite German football clubs | Dolores Dravinec Reyzis, *Saarland University, Germany*

● AEMINIUM

11:30 | Parallel Oral Sessions 16 | Women's Soccer I

Chair: Susana Póvoas

Measurement of energy expenditure by doubly labeled water in female professional soccer players | Marcus S. Dasa, *UiT, The Arctic University of Norway, Norway*
Is match related physical performance in women's football position or player specific? | Andreas Kjæreng Winther, *UiT -The Arctic University of Norway, Norway*
The effect of neuromuscular training on body composition in female soccer players | Elena Mainer-Pardos, *University of San Jorge, Autov A23 km 299, 50830. Villanueva de Gállego, Zaragoza, Spain*
Warm-up strategies of elite female soccer players: practitioners' perspectives | Naomi Datson, *University of Chichester, UK*
Braiding the Beautiful Game: Characterizing Team Movement Patterns in Elite Football | Farzad Yousefian, *Department of Kinesiology, University of Waterloo, Waterloo, Canada*
Technical and spatio-temporal factors influence playing sequences in professional women's soccer | Laura M.S. de Jong, *School of Exercise & Nutrition Sciences, Centre for Sport Research, Deakin University, Geelong, Australia*

📺 13:00 | Lunch | Conventual Room

14:00 | Symposium 4 | Marítimo (Professional Soccer Club) Training Lab

Chair: Elvino Rúbio

Marítimo Training Lab: A Research Laboratory for Innovation and Performance in Football | Elvino Rúbio Gouveia, *University of Madeira, Portugal; LARSyS, Interactive Technologies Institute, Portugal*
Body composition and physical fitness differences between elite and non-elite football players | Cíntia França, *Universidade da Madeira, Portugal*
High-performance athletes and sports injuries: a longitudinal study in a professional soccer team | Francisco Martins, *Department of Physical Education and Sport, University of Madeira, Portugal; LARSyS, Interactive Technologies Institute, Portugal*
The influence of numerical variability in small-sided games on youth football Goalkeepers' tactical-technical behavior | Honorato Sousa, *Universidade de Coimbra, Portugal*

15:00 | Symposium 5 | IPMAIA

Chair: Daniel Duarte

Are the Self-myofascial Release Instruments Effective on Performance and Recovery in Sports? | Ricardo Ferreira, *Núcleo de Investigação do Instituto Politécnico da Maia (N2I), Instituto Politécnico da Maia (IPMAI) Departamento de Fisioterapia, Escola Superior de Tecnologia da Saúde de Coimbra (ESTeSC), Instituto Politécnico de Coimbra, Portugal*
Objective and subjective tests for fatigue monitoring: What is the relation? | João Pedro Roque Lourenço, *N2I, Instituto Politécnico da Maia, Portugal*
Coach-athlete relationship in international national teams competitions | João Ramos, *Núcleo de Investigação do Instituto Politécnico da Maia (N2I), Portugal*
Soccer variables and metrics for success | Rui Lima, *Núcleo de Investigação do Instituto Politécnico da Maia (N2I), Instituto Politécnico da Maia, Portugal*