

4th Edition

Exercise, Biomechanics and Nutrition

**BOOK OF ABSTRACTS
2025**

Editor: Leitão, L



EDUCAÇÃO

POLITÉCNICO SETÚBAL
SCHOOL · POLYTECHNIC UNIVERSITY



cieqv

centro de
investigação em
qualidade de vida

FCT

Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

Book of Abstracts

4th INTERNATIONAL CONGRESS EXERCISE, BIOMECHANICS AND NUTRITION – ESE/IPS May 29 and 30 of 2025

Editor:

Luis Leitão

Co-Editors:

Raul Domínguez

Teresa Figueiredo

Editions:

Instituto Politécnico de Setúbal – Escola Superior de Educação
Centro de Investigação em Qualidade de Vida

ISBN:

978-989-35809-7-4

Classification:

Digital

Copyright ©

Instituto Politécnico de Setúbal – Escola Superior de Educação
Campus do IPS, Estefanilha, 2914-504 Setúbal, Portugal

Funding:

FCT – Fundação para a Ciência e a Tecnologia, I.P./
Foundation for Science and Technology, I.P., Grant/Award Number UIDB/04748/2020
Life Quality Research Center (Centro de Investigação Qualidade de Vida)

Preface

Polytechnic Institute of Setúbal is emerging as a reference in the supporting and diffusion of scientific advances in Sports Sciences across the International Congress: Exercise, Biomechanics and Nutrition in a commitment with the academic excellence of their students and the scientific community.

The fourth edition of the International Congress: Exercise, Biomechanics and Nutrition reflexes the success of this scientific-technical-informative initiative that makes to this event as one of the most important from Portugal and the Iberian Peninsula. This event selected an hybrid format that interspersed conferences of contrasted speakers with oral communications of Degree student and consolidated research groups. Assistants to this events that exceeded 240 participants attended to the last advances in 3 well differentiated areas as Biomechanics, Exercise and Sport Nutrition divided in 11 conferences.

Conferences were presented by prestigious researchers from 6 different universities of 5 different countries as Polytechnic Institute of Setúbal (Portugal), University of Salamanca, University of Sevilla (Spain), Federal Institute of Minas Gerais (Brazil), University of Jyväskylä (Finland) and University of Suffolk (UK).

However, the most important area of this Congress was the number and quality of the oral communication presented, 94 in total. In this sense, the International Congress: Exercise, Biomechanics and Nutrition is one of the Congress with a higher number of works presented by Graduate students that it is in combination with the results of contrasted research groups, some of the references at international level that include researchers from eight different countries as England, Brazil, Spain, Portugal, Colombia, Italy, Iran and Turkey. Readers have the opportunity of supervising all these oral communication from the abstract presented in this Book of Abstracts.

Since the Organizing and Scientific Committees want to congratulate to all the researchers and attendees who participated in this third edition of the International Congress: Exercise, Biomechanics and Nutrition. In addition, to the external readers we invite to participate in the fifth edition that will be organized by Polytechnic Institute of Setúbal in 2026.

Índice

<i>Preface</i>	3
<i>Congress Committees</i>	11
<i>Congress Program</i>	12
<i>Abstracts</i>	14
New Anthropometric Equations for Segmental Estimation of Fat-Free Mass in Physically Active Men	15
Comparison of DXA and BIA in the Estimation of Fat-Free Mass in Physically Active Young Adults	16
Impact of Body Composition on Physical Performance in Elite Female soccer players	17
Objective evaluation of padel performance: comparison between result-based rankings and computer vision systems	18
Validity of BIA for segmental fat mass analysis in young men and development of predictive models using anthropometry	19
Boosting Confidence in Beginners: The Role of Instruction Type in Exercise Self-Efficacy during lifting tasks	20
Linking Physical Literacy to Mental Health	21
Correlation between strength manifestations and functional capacity in older women undergoing traditional resistance training	22
Creatine as an ergogenic aid for returning to play in athletes with patellar tendinopathy	24
Safe or Dangerous? Evaluating Group A Sports Supplements in the Context of the Epithelial Barrier Hypothesis	26
Sports Drinks May Affect Salivary Parameters in Adolescent Footballers	27
Physical and Performance Profiles by Playing Position in Elite Youth Futsal Players .	28
Impact of resistance training volume on strength deficit	29
Larger Achilles and plantar fascia induce lower duty factor during barefoot running	31
Assessment of inspiratory muscle training in patients with multiple sclerosis. A systematic review	32
Respiratory muscle training in patients with chronic obstructive pulmonary disease: A systematic review	34
EFFECTS OF RESISTANCE TRAINING ON STRENGTH MANIFESTATIONS IN UNIVERSITY MEN	35
Training on outdoor fitness equipment. Protocol and progression for adults and seniors	36
Evolution of the cycling Power Profile and External Training Load in International Junior and U23 Triathletes: a between-seasons Longitudinal Analysis	38
Enhancing Aerobic Capacity in Young Soccer Players: Impact of Combined Intermittent, Interval, and Small-Sided Games Training in a Periodized 3:1 Micro-Cycle	39

Exploring the Impact of Functional Exercise Rehabilitation on Neuroplastic Biomarker Changes in Cardiovascular Disorders	42
Effect of resistance training on resting metabolic rate in young and older adults. Pilot study.....	44
Impact of physical aquatic therapy rehabilitation in active patients after surgical anterior cruciate ligament reconstruction. A systematic review of controlled clinical trials.	45
Efficacy of a virtual reality rehabilitation program in post-stroke patients. A systematic review of controlled clinical trials.	47
What is the most effective ACL injury prevention strategy in football? An Umbrella Review.	48
Effect of intermittent normobaric hypoxia on visuospatial working memory in healthy young adults	50
Effect of an intermittent normobaric hypoxia session on sustained attention in healthy young adults.	51
The influence of training on the use of the Extendable Police Baton in military police interventions.....	52
Quality of Life and Chronic Kidney Disease: What are the changes in different strength training loads? (preliminary study)	53
Velocity loss as a set-termination criterion in bench press: does previous fatigue affect it?	54
Interactions Between Citrulline Malate Supplementation and High-Intensity Interval Training in Enhancing Athletic Performance: A Narrative Review	56
Effects of Different Plyometric Approaches on Speed and Agility in Football Players.	58
Morphological and functional parameters during walking in children with unilateral Sever disease: intrasubject comparison	59
Impact of Small-Sided Games with Distraction Models on Soccer Players' Performance and Behavior	60
Optimization of Cycling Performance through a New Telemetry System for the Study of Tire Inflation Pressure	63
Dietary Supplement Use Among Amateur Bodybuilders in Türkiye: A Preliminary Report	65
Exploring Nutritional Supplement Use by Turkish Handball Players: A Pilot Study ..	66
Physical Activity and Intuitive Eating in Older Adults with Type 2 Diabetes: A Behavioral Health Perspective	68
Preventive strategies for bone mineral density loss in women: a systematic review	69
Use of smart templates to analyze gait in single and dual task conditions in women with fibromyalgia	70
The Hidden Impact of Pelvic Floor Dysfunction on Female Athletes' Participation, Performance, and Well-being – An Umbrella Review	72
Nutrition and Taekwondo: Mapping Scientific Trends	74
The Effects of Warm-up in Resistance-Training: A Systematic Review	75

Impact of Week Training Load, Match Load on Next Day Neuromuscular Fatigue on Professional Football Players	76
Could isokinetic strength be modulated by the menstrual cycle in female athletes?	78
Study of the Goals Scored During the 2023 FIFA Women’s World Cup.....	80
PREVALENCE OF URINARY INCONTINENCE IN FEMALE ATHLETES: A SYSTEMATIC REVIEW	82
Analysis of gender differences in the perception and satisfaction with the use of Edpuzzle for strength-resistance training in adolescents in compulsory secondary education.....	83
Impact of the use of Edpuzzle for strength-resistance training on psychological variables in adolescents in compulsory secondary education.....	84
High-Intensity Interval Training (Tabata) and Its Impact on Muscular Strength in Dancers and Sedentary Individual.....	85
Multidimensional Rehabilitation Protocol to Improve Function in Athletes with Patellar Tendinopathy: A Randomized Controlled Trial	86
Mental and Behavioral Health Indicators in Retired Turkish Athletes: Preliminary Findings	87
Effects of Physical Exercise on Insulin in Prostate Cancer.....	88
Monitoring Training Load: GPS-Based Analysis of Monotony and Strain in Professional Soccer Starters and Non-Starters Throughout a Full Season	90
When Physiology Also Plays: The Influence of the Menstrual Cycle on Female Athletes’ Performance	91
MARKET VALUE AND SPORTING PERFORMANCE IN THE SAUDI PRO LEAGUE: AN ANALYSIS OF THE LAST 10 YEARS.....	92
Worst-Case Scenarios in a Professional Men's Basketball Tournament: a Case Study	93
Effects on body composition of active and inactive adolescents of an intervention with mobile step-tracking apps.....	94
Influence of adolescents' level of physical activity on the rating of mobile step-tracking applications	95
CORRELATIONS BETWEEN PHYSICAL AND TECHNICAL ASPECTS IN U10 FUTSAL PLAYERS	96
Impact of the phases of the menstrual cycle along a gradual exercise test	98
MAXIMAL ISOMETRIC HIP ABDUCTION STRENGTH ASSESSMENT: A SYSTEMATIC REVIEW	100
Descriptive work on how the four menstrual cycles affect strength in different athletes	102
Exercise readiness level in male futsal athletes from a university tournament (UFV)	103
EFFECTS OF A DETRAINING PERIOD AFTER A RESISTANCE TRAINING INTERVENTION WITH DIFFERENT VELOCITY LOSS THRESHOLDS ON THE CONTRACTILE PROPERTIES OF THE VASTUS LATERALIS	104
Readiness Level for Physical Exercise in Female Futsal Athletes from a University Tournament (UFV).....	105

Nuevas ecuaciones antropométricas para la estimación segmentaria de masa libre de grasa en hombres físicamente activos.....	106
Comparación del DXA y BIA en la estimación de masa libre de grasa en adultos jóvenes físicamente activos.....	108
Impacto de la composición corporal en el rendimiento físico de futbolistas femeninas de élite.....	109
Evaluación objetiva del rendimiento en pádel: comparación entre rankings basados en resultados e inteligencia artificial.....	110
Validez de la BIA para el análisis de masa grasa segmentaria en hombres jóvenes y desarrollo de modelos predictivos mediante antropometría	111
Potenciar la confianza en principiantes: el rol del tipo de instrucción en la autoeficacia durante el ejercicio	112
Vincular la alfabetización física a la salud mental.....	113
Correlação entre manifestações de força e capacidade funcional em mulheres idosas submetidas ao treinamento resistido tradicional.....	114
La creatina como una ayuda ergogénica para el regreso al juego en atletas con tendinopatía patelar	116
Influencia de los segmentos y las transiciones en el rendimiento de triatletas de élite según la distancia y el sexo.....	118
Seguros ou perigosos? Avaliação dos suplementos esportivos do Grupo A no contexto da hipótese da barreira epitelial	119
Las bebidas deportivas pueden afectar los parámetros salivales en futbolistas adolescentes	121
Perfiles físicos y de rendimiento por posición de juego en jugadores juveniles de élite de fútbol sala.....	123
Impacto del volumen de entrenamiento de fuerza en el déficit de fuerza	124
Un tendón de Aquiles y una fascia plantar más grandes inducen un factor de trabajo menor durante barefoot running.....	126
Evaluación del entrenamiento de la musculatura inspiratoria en pacientes con Esclerosis Múltiple. Una revisión sistemática	127
Entrenamiento de la musculatura respiratoria en pacientes con enfermedad pulmonar obstructiva crónica: Una revisión sistemática	129
EFEITOS DO TREINAMENTO RESISTIDO SOBRE AS MANIFESTAÇÕES DE FORÇA EM HOMENS UNIVERSITÁRIOS.....	131
Entrenamiento en maquinaria biosaludable. Protocolo y progresión para personas adultas y mayores.....	132
Evolución del Perfil de Potencia ciclista y de la Carga Externa de Entrenamiento en Triatletas Internacionales Júnior y Sub23: un Análisis Longitudinal entre temporadas.	134
Aumento da capacidade aeróbia em jovens jogadores de futebol: impacto do treino combinado de jogos intermitentes, intervalados e de pequena dimensão num microciclo periodizado 3:1	135
Explorando o impacto da reabilitação funcional através do exercício nas alterações de biomarcadores neuroplásticos em doenças cardiovasculares.....	139

Efecto del entrenamiento de fuerza en el gasto metabólico en reposo en adultos jóvenes y adultos mayores. Estudio piloto	141
Impacto de un programa de ejercicio de rehabilitación acuática de fisioterapia en pacientes activos tras la reconstrucción quirúrgica del ligamento cruzado anterior. Una revisión sistemática de ensayos clínicos controlados.....	143
Eficacia de un programa de rehabilitación mediante realidad virtual en pacientes tras haber sufrido un accidente cerebrovascular. Una revisión sistemática de ensayos clínicos controlados.....	145
What is the most effective ACL injury prevention strategy in football? An Umbrella Review	147
Efecto de la hipoxia normobárica intermitente sobre la memoria de trabajo visoespacial en adultos jóvenes sanos	149
Efecto de una sesión de hipoxia normobárica intermitente sobre la atención sostenida en adultos jóvenes sanos.	151
La influencia de la formación, en la utilización del Bastón Policial Extensible, en las intervenciones policiales.	152
Qualidade de vida e Doença Renal Crônica: Quais são as alterações em diferentes cargas de treino de força (estudo preliminar).....	153
Pérdida de velocidad como criterio para terminar una serie en press de banca: ¿afecta la fatiga previa?	155
"Interactions Between Citrulline Malate Supplementation and High-Intensity Interval Training in Enhancing Athletic Performance: A Narrative Review"	157
Efectos de distintos enfoques de pliometría en la velocidad y agilidad en jugadores de fútbol	159
Parámetros morfológicos y funcionales en la marcha de niños con enfermedad de Sever unilateral: comparación intrasujeto.....	160
Impacto dos jogos de pequena dimensão com modelos de distração no desempenho e comportamento de jogadores de futebol	161
Optimización del Rendimiento Ciclista mediante un nuevo Sistema de Telemetría para el Estudio de la Presión de Inflado de Neumáticos.	165
Uso de Suplementos Dietéticos entre Culturistas Aficionados en Turquía: Informe Preliminar	167
Exploración del uso de suplementos nutricionales en jugadores turcos de balonmano: un estudio piloto.....	169
Actividad física y alimentación intuitiva en adultos mayores con diabetes tipo 2: una perspectiva de salud conductual	171
Estrategias preventivas para la pérdida de densidad mineral ósea en mujeres: revisión sistemática.....	173
Uso de plantillas inteligentes para analizar la marcha en condición simple y dual en mujeres con fibromialgia.....	175
El impacto oculto de la disfunción del suelo pélvico en la participación, el rendimiento y el bienestar de las mujeres deportistas	177
Nutrition and Taekwondo: Mapping Scientific Trends	179

Os Efeitos do Aquecimento na Performance Muscular e no Treino de Força: Revisão Sistemática	180
Impacto de la carga semanal de entrenamiento y la carga del partido sobre la fatiga neuromuscular al día siguiente en futbolistas profesionales	181
¿Podría la fuerza isocinética estar modulada por el ciclo menstrual en mujeres deportistas?	183
Estudio de los goles anotados durante el Mundial de Fútbol Femenino 2023.....	185
PREVALENCIA DE LA INCONTINENCIA URINARIA EN ATLETAS FEMENINAS: REVISIÓN SISTEMÁTICA.....	187
Análisis de las diferencias de género en la percepción y satisfacción del uso de Edpuzzle para el entrenamiento de fuerza-resistencia en adolescentes de Educación Secundaria Obligatoria	189
Impacto del uso de Edpuzzle para el entrenamiento de fuerza-resistencia sobre las variables psicológicas de los adolescentes de Educación Secundaria Obligatoria	191
High-Intensity Interval Training (Tabata) and Its Impact on Muscular Strength in Dancers and Sedentary Individual.....	192
Protocolo Multidimensional para la Mejora de la Función en Pacientes con Tendinopatía Rotuliana	193
Indicadores de Salud Mental y Conductual en Atletas Turcos Retirados: Resultados Preliminares	194
Efectos del Ejercicio Físico en la Insulina en Cáncer de Próstata.....	196
Monitoreo de la carga de entrenamiento: análisis basado en GPS de la monotonía y la tensión en futbolistas profesionales titulares y suplentes a lo largo de una temporada completa.....	198
Cuando la Fisiología también Juega: Influencia del Ciclo Menstrual en el Rendimiento de las Deportistas	200
VALOR DE MERCADO E DESEMPENHO ESPORTIVO NA SAUDI PRO LEAGUE: UMA ANÁLISE DOS ÚLTIMOS 10 ANOS	201
Worst-Case Scenarios de un torneo de baloncesto masculino profesional: estudio de caso	203
Efectos sobre la composición corporal de adolescentes activos e inactivos de una intervención con aplicaciones móviles cuentapasos	204
Influencia del nivel de actividad física de los adolescentes en la valoración de las aplicaciones móviles cuentapasos.....	205
CORRELAÇÕES ENTRE ASPECTOS FÍSICOS E TÉCNICOS EM JOGADORES DE FUTSAL SUB-10	207
Impacto de las fases del ciclo menstrual durante una prueba de ejercicio progresivo	209
EVALUACIÓN DE LA FUERZA ISOMÉTRICA MÁXIMA DE ABDUCCIÓN DE CADERA, REVISIÓN SISTEMÁTICA.....	211
Trabajo descriptivo de cómo los cuatro ciclos de la menstruación afecta la fuerza en distintas atletas	213
Nível de prontidão para atividade física em atletas universitários de futsal masculino de um torneio da (UFV).....	215

EFFECTOS DE UN PERÍODO DE DESENTRENAMIENTO TRAS UNA INTERVENCIÓN DE ENTRENAMIENTO DE FUERZA CON DIFERENTES UMBRALES DE PÉRDIDA DE VELOCIDAD SOBRE LAS PROPIEDADES CONTRÁCTILES DEL VASTO LATERAL..... 217

Nível de prontidão para a prática de exercício físico em atletas universitárias de futsal da UFV 219

Congress Committees

Organizing Committee

Superior School of Education of Polytechnic Institute of Setúbal (ESE-IPS)

Chair of the Organizing Committee: Luis Leitão

Members: Teresa Figueiredo; Amílcar Antunes; Ana Pereira; Ana Cristina Figueira; Paulo Nunes.

Scientific Committee

Chair of the Scientific Committee: Luis Leitão – IP Setúbal, Portugal

Members: Teresa Figueiredo – IP Setúbal, Portugal; Hugo Louro and Nuno Pimenta – ESDRM, Portugal; Henrique Neiva and Daniel Marinho – UBI, Portugal; António Silva – UTAD, Portugal; Simon Walker – University of Jyväskylä, Finland; John McMahon – Hawkin Dynamics, England; Maria Francesca Piacentini – University of Rome “Foro Italico”, Italy; Rocco di Michelle – University of Bologna, Italy; Raul Domínguez – Universidad de Sevilla, Espanha; Fernando Pareja Blanco – Universidad de Pablo de Olavide, Espanha; Alberto Pérez-Lopéz – University of Alcalá, Spain; Moacir Marocolo, Jefferson Vianna – Universidade Federal de Juiz de Fora, Brazil; Jeferson Novaes - Universidade Federal de Rio de Janeiro, Brazil; Maria Socorro Sousa - Universidade Federal da Paraíba, Brazil; Osvaldo Moreira – Universidade Federal de Viçosa, Brazil; Estevão Monteiro – University Center Augusto Motta, Brazil; Mauro Mazini - Instituto Federal Sudeste MG, Brazil; Sandro Fernandes da Silva – Universidade de Lavras, Brazil

Congress Program

May 29, Thursday

10:00 – Opening Session – ESE Auditorium

Angela Lemos | President of the Polytechnic Institute of Setúbal

João Pires | Dean of ESE-IP Setúbal

Luis Leitao | Professor at the Science and Technology Department of ESE-IP Setúbal

10:30 – *Physical Activity, Exercise and Nutrition* – ESE Auditorium
Sedentary behaviors and prevention of musculoskeletal disorders in the working population. – **PhD Miguel Madruga, University of Salamanca, Spain**

11:20 – Sedentary behaviors and prevention of musculoskeletal disorders in the working population – **PhD Josué Prieto, University of Salamanca, Spain**

12:00 - Warming up: evidence and applications in sports training – **PhD João Ferreira-Junior, Federal Institute of Minas Gerais, Brazil**

13:30 – Lunch Break

14:00 – *Exercise and Biomechanics in sport* – ESE Auditorium
WORKSHOP: Biomechanics and Nutrition in Endurance Sports in the Natural Environment – **PhD Miguel Madruga and Josue Prieto, University of Salamanca, Spain**

16:00 – Recents Advances in Sports Injury Rehabilitation: The Role of Blood Flow Restriction – **MsT Christian Castilla, Rehab fitness coach/ S&C coach, Spain**

16:30 – Considerations for criteria and exercise selection following a hamstring injury in football – **MsT Paolo Perna, Sports Medicine and Physioterapist, University of Suffolk, UK**

17:30 – Sports Injury Rehabilitation Round Table with Paolo Perna and Christian Castilla moderated by Javier Pecci, University of Seville, Spain

18:00- 19:30 Abstract/Video Oral Presentations I

May 30, Friday

8:00 – Abstract/Video Oral Presentations II

13:00 – Lunch Break

14:00 – Resistance Training in the female athlete: Physiological considerations – **PhD
Std Vera Salmi, University of Jyväskylä, Finland**

15:00 – *Congress Closing Session*

Luis Leitão | Professor of Science and Technology Department at ESE-IP Setúbal

Raúl Dominguez | Professor in Sports at University of Seville

Abstracts

Sports Drinks May Affect Salivary Parameters in Adolescent Footballers

Bakdım, K., ¹; Yılmaz, Ş., ¹; Kement, S., ¹; Küçük, F.B., ²; Sücüllülü, B.N., ³; Yalvaç, S., ⁴; Vural, Y., ⁴; Saygılı, S., ⁴; Özüpek, G., ²; Özgün, M., ⁵; Keskin, M., ⁶; Özen, B., ¹; Günalan, E., ⁷

1. Faculty of Dentistry, Istanbul Health and Technology University, Türkiye.; 2. Program of Nutrition and Dietetics, Institute of Graduate Studies, Istanbul Health and Technology University, Türkiye.; 3. Oral and Dental Health Program, Vocational School Of Health Services, Istanbul Health and Technology University, Türkiye.; 4. Program of Pedodontics, Institute of Graduate Studies, Istanbul Health and Technology University, Türkiye.; 5. Department of Physiotherapy and Rehabilitation, Faculty of Health Science, Istanbul Health and Technology University, Türkiye.; 6. Department of Physical Education and Sports, Institute of Graduate Studies, Halic University, Türkiye.; 7. Department of Nutrition and Dietetics, Istanbul Health and Technology University, Türkiye.

Introduction

Many adolescent athletes turn to sports supplements (SS) to improve their performance. Still, the growing use of these products raises questions about how they might affect oral health in the long run. While most studies focus on adult athletes and link sports drink consumption to dental issues like erosion and decay, it is worth asking whether these problems could begin much earlier, during the teenage years. This study explored how supplement use may influence salivary characteristics and early signs of oral health changes in adolescent football players.

Methods

Participants' characteristics and use of sports supplements were collected from 52 adolescent footballers through a structured questionnaire. Dental caries experience was assessed using the DMFT index (Decayed, Missing, and Filled Teeth). Dental erosion was evaluated using two clinical tools: the Visual Dental Erosion Examination Index and the Basic Erosive Wear Evaluation. Salivary parameters were measured using the GC Saliva Check Buffer kit. Statistical analysis was conducted using Jamovi (Version 1.8).

Results and Conclusions

No significant relationship was found between regular SS use and the DMFT index or dental erosion. However, a significant association was only identified between sports drink consumption and resting salivary pH, stimulated salivary volume (mL), and stimulated salivary pH ($p < 0.05$). These findings suggest that, among supplements used during adolescence, sports drinks pose the highest risk in terms of salivary parameters. Early and frequent use of sports drinks may carry long-term consequences for oral health. Raising awareness among adolescent athletes is crucial, and offering safe hydration alternatives, such as mineral water, can be part of that effort.

Keywords: adolescent, football, sports, supplements, oral health