

**4th Edition**

# **Exercise, Biomechanics and Nutrition**

**BOOK OF ABSTRACTS  
2025**

**Editor: Leitão, L**

## **Book of Abstracts**

# **4<sup>th</sup> INTERNATIONAL CONGRESS EXERCISE, BIOMECHANICS AND NUTRITION – ESE/IPS May 29 and 30 of 2025**

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## 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.

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## **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

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# 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

# Safe or Dangerous? Evaluating Group A Sports Supplements in the Context of the Epithelial Barrier Hypothesis

Sadık, M., <sup>1</sup>; Aladağ, E., <sup>1</sup>; Bayraktar, B., <sup>2,3,4</sup>; Sanchez-Oliver, A.J., <sup>5</sup>; Günalan, E., <sup>6</sup>

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## Introduction

The epithelial barrier hypothesis suggests that the integrity of epithelial barriers in the skin, respiratory tract, and intestinal mucosa contributes to various chronic diseases. Long-term and high-intensity training, dehydration, malnutrition, etc., can cause epithelial barrier sensitivity in elite athletes. Elite athletes commonly consume sports supplements (SS) to enhance performance, support physical appearance, and prevent nutrient deficiencies. Scientific evidence indicates that SS can also affect the integrity of epithelial barriers. This study aims to discuss the potential effects of SS classified as Group A by the Australian Sports Institute (AIS) on epithelial barrier integrity.

## Methods

This study focuses on Group A supplements, which are supported by robust scientific evidence for application in defined athletic contexts, following evidence-based guidelines. In this context, the potential effects of sports foods, medical supplements, and performance supplements are investigated in the scope of epithelial barrier integrity, type 2 immunity, inflammation, mucosal barrier, and pathogen colonization.

## Results and Conclusions

The effects of SS on the gastrointestinal system can vary considerably. Certain supplements, such as zinc, vitamin D, probiotics, protein, calcium, beta-alanine, creatine and nitrates, have reduced intestinal permeability and inflammation while increasing the expression of tight junction proteins. However, the unsupervised use of energy drinks, sports bars, gels, electrolyte supplements, and iron can contribute to adverse health outcomes due to damage to the epithelial barrier. Interestingly, studies regarding the impact of caffeine, glycerol and sodium bicarbonate on the integrity of the epithelial barrier present conflicting outcomes. These findings indicate that while Group A supplements are generally considered safe, their long-term effects should be reexamined, particularly on epithelial integrity. Further research is essential to clarify how frequently supplements influence the epithelial barrier, especially in elite athletes exposed to high physical stress.

**Keywords:** epithelial barrier, inflammation, sports, supplements, tight junctions