

2nd
Edition



Exercise, Biomechanics and Nutrition

BOOK OF ABSTRACTS



Book of Abstracts

2nd INTERNATIONAL CONGRESS EXERCISE, BIOMECHANICS AND NUTRITION – ESE/IPS 10 and 11 of May 2023

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Preface

Currently, we are attending to the diminution of an important number of congress which are decreasing with the number of attendees to the scientific meetings. In this context, universities, research centres and institutions should adapt to this complex reality that changed as consequences of COVID-19 pandemic for promoting knowledge and diffusion of the scientific advances. This cover more importance in the Sports Sciences professionals based on the new knowledge based in its young incorporation as object of study in the science and its application to new population groups and the inclusion of novelty technologies 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 second 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 200 participants attended to the last advances in 3 well differentiated areas as Biomechanics, Exercise and Sport Nutrition divided in 9 conferences.

Conferences were presented by prestigious researchers from 9 different universities of 5 different countries as Polytechnic Institute of Setúbal and Polytechnic Institute of Leiria (Portugal), University of Alcalá, Autonomous University of Madrid, Rey Juan Carlos University and University of Sevilla (Spain), Lavras University (Brazil), University of Salford (England), and University of Jyvaskyla (Finland). Therefore, it was exposed the last advances in the monitorization of neuromuscular fatigue in soccer using force plates, factor that favour reducing the risk of injury in athletes or in TMS and Strength Training. Also, it was exposed the last advances in the periodization of well-trained endurance athletes and the importance of nutrition and physical activity in the retired adults and physical programs for promoting the health status in clinical population (Parkinson's disease). For the last, it was exposed ergogenic resources and their relations with sport performance and the importance of caffeine, sodium bicarbonate and beetroot juice in strength and power production.

However, the most important area of this Congress was the number and quality of the oral communication presented. 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, Australia, Italy 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 second edition of the International Congress: Exercise, Biomechanics and Nutrition. In addition, to the external readers we invite to participate in the third edition that will be organized by Polytechnic Institute of Setúbal in 2024.

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Congress Committees

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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.

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Congress Program

May 10th, Wednesday

10:00 – Opening Session – ESE Auditorium

Angela Lemos | President of the Polytechnic Institute of Setúbal

Rául Dominguéz | Sport Sciences Department of University of Sevilla

Teresa Figueiredo | Head of Science and Technology Department 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

Beetroot Juice supplementation in strength and power training – **PhD Raul Dominguéz, University of Sevilla, Spain.**

Training volume, intensity distribution and periodization in well-trained and elite distance runners”. – **PhD Arturo Casado, Rey Juan Carlos University, Spain.**

12:00 - Abstract/Video Oral Presentations I

13:00 – Lunch Break

14:00 – *Exercise and Biomechanics in sport* – ESE Auditorium

Monitoring neuromuscular fatigue in soccer with force plates: current evidence and future directions – **PhD John MacMahon, University of Salford, UK.**

14:40 – Is it necessary to reach muscle failure to maximize quadriceps muscle architecture adaptations in team sports players? A meta-analysis – **Mst Javier Pecci**

15:00 - Machine Learning Analysis of the Relationship between Physical Activity and Bone Mineral Density in U.S. Women – **Mst Horacio Sanchez-Trigo**

15:30 – Abstract/Video Presentations II

May 11th, Thursday

8:30 – Abstract/Video Presentations III

10:00 – TMS and Strength Training – **PhD Simon Walker – University of Jyvaskyla, Finland.**

11:30 - Promoting engagement to exercise in Parkinson’s Disease – **PhD Carla Pereira, ESS-IPS, Portugal.**

13:00 – Lunch Break

14:00 – Ergogenic resources and their relationship with sport performance: expectation x reality – **PhD Sandro Silva, Federal University of Lavras, Brazil**

14:45 – The importance of nutrition in power production: caffeine and sodium bicarbonate – **PhD Alberto López-Pérez, University of Alcalá, Spain**

16:00 – *Congress Closing Session*

João Pires | Dean of Superior School of Education of the Polytechnic Institute of Setúbal

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

Ana Pereira | Coordinator of the Degree in Sports at ESE-IP Setúbal

Use of Nutritional Supplements in Turkish Elite Skiers: Preliminary Data

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Abstract: Winter sports athletes challenge with increased energy expenditure, glycogen utilization, and fluid loss due to cold environmental conditions. Nutritional supplements (NS) may provide various benefits such as improved health or performance, more effective training, and a direct performance advantage to winter sports athletes such as skiers. This study aims to investigate NS consumption in Turkish elite skiers of different competition levels. Fifty-five elite male skiers completed the online specific survey about NS consumption, which included sections on demographics, sport/training, and NS consumption. However, thirty participants were excluded from the study due to being under the age of 18. Surveys of 25 elite athletes were analyzed (44.0% of all in national competitions vs. 56.0% of all in international competitions). The disciplines of participants were alpine skiing (76.0%), cross-country skiing (20%), and snowboarding (4%). 88.0% (n=22) of the participants declared that they consumed at least one supplement. The mostly consumed NS were vitamin D (16.0%), green tea (16.0%), omega-3 fatty acids (12.0%), vitamin C (12.0%), caffeine (12.0%), and whey protein (12.0%). The major reasons for NS consumption were to increase sports performance (32.0%) and to take care of health (24.0%). The most common sites of purchase were pharmacies (32.0%) and the Internet (16.0%). The main sources of NS-consuming motivation were physicians (24.0%) and self-advice (20.0%). NS consumption moderately appeared among Turkish male skiers. Unconscious or excessive use of NS may impair performance and pose a risk to the health of the winter sports athlete. Therefore, it should be questioned medically, physiologically, culturally, and ethically whether the athletes have the necessary knowledge to make an informed choice in future studies.

Keywords: ergogenic aids; skiing; nutrition; sports performance; supplementation

Uso de Suplementos Nutricionais em Esquiadores Turcos de Élite: Dados Preliminares

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Resumo: Atletas de esportes de inverno enfrentam desafios de aumento do gasto energético, utilização de glicogênio e perda de fluidos devido às condições ambientais frias. Suplementos nutricionais (NS) podem fornecer vários benefícios, como melhoria da saúde ou desempenho, treinamento mais eficaz e vantagem direta de desempenho para atletas de esportes de inverno, como esquiadores. Este estudo tem como objetivo investigar o consumo de NS em esquiadores de elite turcos de diferentes níveis de competição. Cinquenta e cinco esquiadores de elite do sexo masculino completaram a pesquisa específica on-line sobre o consumo de NS, que incluiu seções sobre demografia, esporte/treinamento e consumo de NS. No entanto, trinta participantes foram excluídos do estudo por serem menores de 18 anos. Foram analisadas as pesquisas de 25 atletas de elite (44,0% de todos os atletas em competições nacionais e 56,0% de todos em competições internacionais). As disciplinas dos participantes foram esqui alpino (76,0%), esqui cross-country (20%) e snowboarding (4%). 88,0% (n=22) dos participantes declararam que consumiram pelo menos um suplemento. Os NS mais consumidos foram vitamina D (16,0%), chá verde (16,0%), ácidos graxos ômega-3 (12,0%), vitamina C (12,0%), cafeína (12,0%) e proteína de soro de leite (12,0%). As principais razões para o consumo de NS foram aumentar o desempenho esportivo (32,0%) e cuidar da saúde (24,0%). Os locais de compra mais comuns foram farmácias (32,0%) e internet (16,0%). As principais fontes de motivação para o consumo de NS foram médicos (24,0%) e auto aconselhamento (20,0%). O consumo de NS apareceu moderadamente entre os esquiadores masculinos turcos. O uso inconsciente ou excessivo de NS pode prejudicar o desempenho e representar um risco para a saúde do atleta de esportes de inverno. Portanto, deve-se questionar, em futuros estudos, se os atletas possuem o conhecimento necessário para fazer uma escolha informada de forma médica, fisiológica, cultural e ética.

Palavras-Chave: substâncias ergogênicas; esqui; nutrição; desempenho esportivo; suplementação