

# II International Congress



life quality research centre

23<sup>rd</sup> and 24<sup>th</sup> February 2023

ESECS | IPLeiria, Portugal



## BOOK OF ABSTRACTS

*Research Trends in Quality of Life*

**TITLE**

Book of abstracts  
II International Congress - CIEQV  
23rd and 24th February 2023

**EDITORS**

José Rodrigues  
Rui Matos  
Miguel Jacinto  
Filipe Rodrigues

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Centro de Investigação em Qualidade de Vida - CIEQV

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Propriety

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## BOOK OF ABSTRACTS

*Research Trends in Quality of Life*

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- 137**     *Development and growth of broccoli (Brassica Oleracea L. Var. Italica Plenck) for industry application to "Parthenon" and "titanium" varieties*
- 138**     *Economic and energy assessment of cover crops in the production system of Tagus river region*
- 139**     *Will be there a response to phosphorus applications in maize? evaluation of the response to phosphate fertilization in the Ribatejo region*
- 140**     *Insect consumption and health – a systematic review of human RCTs*
- 141**     *Agriculture: how to make it more sustainable?*
- 142**     *Adapting land cover to land use capacity: safe food production*
- 143**     *3D-printed food – an approach for food production and new markets*
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## EDITORIAL

The II International Congress - CIEQV is the consequence of the development of the center's strategic plan, which aims to increase scientific production in the field of quality of life. The communication of the science carried out configures a relevant social approach for public scientific research institutions. This congress aims above all to make available the knowledge acquired on the subject of quality of life, aiming to transfer to society and citizens the information applied to their way of life.

We consider the highlights of the congress to be the discussion at roundtables on two fracturing themes, inclusion and urbanism associated with the quality of life of citizens. The conferences are multidisciplinary, addressing topics such as children's education and sports participation, sustainable agriculture and self-care, all of them related to citizens' quality of life.

The proposed papers reflect the diverse research paradigms of this multidisciplinary and thematic center: studies on the educational contexts of youth and children; on the inclusion of people with disabilities; research focused on food products and sustainable behaviors; approaches to sports training, athlete performances, physical activity practice; exploration of research on the motor behavior of children and youth; study of sustainability in organizations; research focused on quality of life in the different stages of human life; etc.

This diverse approach demonstrates the complexity of the social phenomenon under study. Researchers search the connection between some variables and their interrelationship. In this way, the research produced gets closer to the ecological and social reality, transferring itself to human practices towards a better and healthy quality of life.

This II International Congress - CIEQV is another initiative for the challenges of research in Quality of Life.

I take this opportunity to thank the institutions that support us, the organizers of the event and the researchers who share their knowledge, from the perspective of open science and available to society.

The coordinator of CIEQV

Full Professor José Fernandes Rodrigues

# PROGRAMME

FEBRUARY 23RD

## 09:00 – Reception and Registration

## 09:15 – Opening [Auditorium 2]

Minister of Science, Technology and Higher Education; President of IPLeiria; President of IPSantarém; President of IPSetúbal, President of FCT; Mayor of the Municipality of Leiria; Principal of ESECS – IPLeiria; CIEQV Scientific Coordinator

## 10:00 – Initial Statement [Auditorium 2] | JOSÉ RODRIGUES

## 10:30 – COFFE BREAK and Poster Session 1

### ■ 1. GREEN TEAM

Cláudia Pinheiro, Nuno Pimenta, Teresa Figueiras

### ■ 2. *Work-family conflicts, cognitive appraisal, and burnout: testing the mediation effect with structural equation modelling*

Rui Resende, Clara Simões, Manuela Gonçalves, Susana Faria, Rui Gomes

### ■ 3. *Quality of life of nurses in work context: a scoping review*

Maria do Carmo Figueiredo, Mário Silva, Marta Rosa, José Amendoeira

### ■ 4. *Interpretation of many valuedness in quality-of-life instruments*

Luís Pedro Ribeiro, Patrik Eklund, Maria Augusta Ferreira, Anabela Ribeiro, Maria Conceição Fariña, Maria Adelaide Paiva, Tânia Gonçalves

### ■ 5. *New generation of oenological products-potassium polyaspartate to promote tartaric stability in white wine*

João Carvalho, Helena Mira

### ■ 6. *Development and growth of broccoli (Brassica Oleracea L. Var. Italica Plenck) for industry application to “Parthenon” and “titanium” varieties*

Artur José Guerra Amaral, Afonso Silva

### ■ 7. *Economic and energy assessment of cover crops in the production system of Tagus river region*

Artur José Guerra Amaral, Micael Ferreira, Tiago Reis

### ■ 8. *Will be there a response to phosphorus applications in maize? evaluation of the response to phosphate fertilization in the Ribatejo region*

Artur Amaral, Tiago Coelho dos Reis

### ■ 9. *Insect consumption and health – a systematic review of human RCTs*

Nair Cunha, Paula Ruivo, Paula Pinto

### ■ 10. *Agriculture: how to make it more sustainable?*

Anabela Grifo, Albertina Ferreira

### ■ 11. *Adapting land cover to land use capacity: safe food production*

Albertina Ferreira, Anabela Grifo

- *12.3D-printed food – an approach for food production and new markets*  
Mário Duarte, Paula Ruivo
- *13. “Insect-based foods” literacy - contributions to healthier food choices*  
Nair Cunha, Paula Pinto, Paula Ruivo
- *14. Food systems transformation – urgency, actions, and pathways research-based*  
Nair Cunha, Paula Ruivo

#### 11:15 – Conference 1 [Auditorium 2] MAGNI MOHR

*University of Southern Denmark*

Title: The potential of team sports for global health promotion and well-being

Moderator: Carla Chicau

#### 12:15 – Oral Communications 1 - Physical Activity and Healthy Lifestyle

Local: Auditorium 2 | Moderator: Filipe Rodrigues

- *15. Barriers and motives for physical exercise and sport practice among trans people: a systematic review*  
Joana Oliveira, Roberta Frontini, Miguel Jacinto, Raúl Antunes
- *16. MATEMATICATIVA – Classroom project-based physical activity for quality-of-life improvement in children*  
Liliana Ramos, Vera Simões, Marta Santos, Susana Franco
- *17. The inclusion of people with disabilities in gyms: the perspective of professionals*  
Marta Alexandra Gonçalves Nogueira, Rogério Paulo Joaquim Salvador
- *18. Repeatability of brain activity as measured by a 32-channel EEG system during resistance exercise of different intensities in apparently healthy young adults*  
Christophe Domingos, João Marôco, Marco Miranda, Carlos Silva, Xavier Melo, Carla Borrego
- *19. Changes in Physical Fitness of first year Sport students – A 4-year evolution perspective*  
Rodrigo Mendes, João Almeida, Fernando Martins, Rui Mendes, Ricardo Gomes

#### 12:15 – Oral Communications 1 - Education and Training

Local: B.1.35 | Moderator: José Amoroso

- *20. Is futsal a mediator for football integration? A physiological and technical-tactical analysis of the under-13 age group*  
Bernardo Viveiros, Ruben Santos, Sandro Jorge, Ricardo Rebelo-Gonçalves
- *21. Be Like an Athlete - BLA*  
Teresa Figueiras, Nuno Pimenta, Mariana Cunha, Alexandre Sousa, Cláudia Pinheiro
- *22. Re.PLAY2.0*  
Cláudia Pinheiro, Nuno Pimenta, Teresa Figueiras

- *23. Profiles of stress adaptation in students: relations with coping and burnout*  
Rui Resende; Ana Ribeiro; Rui Gomes; Catarina Morais; Joel Gonçalves
- *24. The effect of cognitive appraisal on teachers' mental health: a multigroup analysis*  
Rui Resende, Adérito Seixas, Clara Simões, Rui Gomes

### **12:15 – Oral Communications 1 - Motor Behavior**

Local: B.1.37 | Moderator: Luís Coelho

- *25. Own drawing of known reduced space and orienteering activity in 4-5 years-old children: exploratory*  
Lídia Cerejeira, Ana Pereira, Beatriz Costa, Fábio Graça, Bruna Vieira, David Catela, Ana Serrão-Arrais
- *26. Learning the figure 8 knot and social materiality in 7-9 years old children*  
Diana Torres, David Catela, Paulo Rosa, Ana Serrão-Arrais
- *27. Comparison of motor competence of children that practices athletics with children that practice other sports*  
Nataniel Lopes, Sérgio J. Ibáñez, Nuno Amaro, Luís Coelho, Diogo Monteiro, Raúl Antunes, Rui Matos
- *28. Card boxes and unstructured play in infants*  
Telma Santana, Beatriz Domingos, Carolina Branco, Mafalda Elias, Melissa Machado, Nicole Rosa, Ana Serrão-Arrais
- *29. Finger injuries on climbing: a systematic review*  
Bernardo Cruz, Joana Matias, Renato Fernandes
- *30. Card boxes and peer play in infants: short report*  
Telma Santana, Beatriz Domingos, David Catela, Ana Serrão-Arrais, Helena Luís

### **12:15 – Oral Communications 1 - Education and Training**

Local: B.1.38 | Moderator: Ricardo Rebelo-Gonçalves

- *31. Stem outdoor education: an experience to enhance students' learning*  
Rita Ferreira, Marisa Correia
- *32. Analysis of speed zones in different soccer pitch size*  
Fernando Santos, Martim Ribeiro, Pedro Freitas, Tiago Silva, Ricardo Robalo, Mário Espada
- *33. Effect of manipulating constraints on external load in medium-sided soccer games*  
Fernando Santos, Daniel Cardoso, Pedro Cancela, Raquel Solana, Ricardo Robalo, Mário Espada
- *34. The effect of plyometric training in U-17 amateur soccer players*  
Mário Espada, António Gonelha, Duarte Pereira, Marcelo de Castro, Cátia Ferreira, Fernando Santos
- *35. Effects of an eccentric strengthening exercise program on hamstrings muscle activity and physical performance in a physically active population*  
Rita Jaleco, Diogo Jerónimo, Ana Pinto, Mariana Ferreira, Fernando Santos, Mário Espada, Gabriela Colaço, Marco Jardim



**- LUNCH BREAK -**

**14:30 – Conference 2 [Auditorium 2] JONATHAN GRIX**

*Manchester Metropolitan University*

Title: Re-assessing the usefulness of the 'Sporting Capital' concept to capture sports participation?

Moderator: Pedro Sobreiro

**15:30 – Roundtable 1 [Auditorium 2] MARIANNE PITKAJARVI, HARRY DANIELS, AND ANTONINO BIANCO**

Moderator: Rui Matos

**16:30 – Oral Communications 2 - Food Production and Technology / Food Behavior**

Local: Auditorium 2 | Moderator: Paula Pinto

■ **36.***Evaluation of soil quality through arthropod bioindicators*

Mário Duarte, Elsa Valério, Rosa Coelho, Maria Godinho

■ **37.***Extracting protein methods from crickets (*Acheta Domesticus*) for food*

Nair Cunha, Vanda Andrade, Paula Ruivo, Maria Gabriela Lima

■ **38.***The influence of water deficit and soil mobilization on water stress in vineyard in Mediterranean region*

Rui Figueiras, Artur Saraiva, Raquel Saraiva, Tomás Neves, Gonçalo Carvalho, Margarida Oliveira

■ **39.***Morphological characteristics for the recognition of *drosphila suzukii* (Matsumura)*

Elsa Valério

■ **40.***Environmental components associated with human behavior by local political actors: the state of (un)grace*

José Manuel Oliveira Carvalho, Paula Lúcia da Mata, Silvério Ruivo, Jorge Eduardo Ferreira Sampaio

■ **41.***Principles of legal basis applied to municipal solid wastes: a holistic and multiple view for non-legal people*

José Manuel Oliveira Carvalho, Ana Paula Gomes, João José Nogueira de Almeida

■ **42.***Indicators for quality assessment of municipal solid waste management services: a critical analysis of the theory proposed to the reality lived*

José Manuel Oliveira Carvalho, Ana Paula Gomes, João José Nogueira de Almeida

**16:30 – Oral Communications 2 - Physical Activity and Healthy Lifestyle**

Local: B.1.35 | Moderator: Susana Franco

■ **43.***Spiritual well-being of Portuguese elderly people resident in home context*

Fátima Cunha, Maria do Rosário Pinto, Margarida Vieira

- *44.Effects of exercise programs on phase angle in older adults: A systematic review and meta-analysis*

Alexandre Duarte Martins, Orlando Fernandes, Rafael Oliveira, Vitor Bilro, Gabriel Lopes, José Par-  
raça, Armando Manuel Mendonça Raimundo, João Paulo Brito

- *45.Phase angle is related with physical function in older adults: A cross-sectional study*

Alexandre Duarte Martins, João Paulo Brito, Nuno Batalha, Rafael Oliveira, Vitor Bilro, Orlando  
Fernandes

- *46.Research in the teaching-learning process – quality of life of the elderly person*

Marta Rosa, José Amendoeira, Mário Silva, Maria do Carmo Figueiredo

- *47.Quality of life of higher education fitness students in Portugal (ESDRM – IPS)*

Isabel Vieira, Liliana Ramos, Vera Simões, Susana Franco

- *48.Perception of risk factors and injuries incidence in via ferrata activities: a systematic review*

Diana Torres, Renato Fernandes

### **16:30 – Oral Communications 2 - Organizational Dynamics**

Local: B.1.37 | Moderator: Pedro Sobreiro

- *49.Measuring perceived sustainability in fitness clubs industry: development and measurement scale - perceived sustainability fitness clubs scale (PSFCS)*

Alfredo Silva, Adelaide Oliveira, Carla Borrego, José Rodrigues, Paula Pinto, Paula Ruivo, Pedro  
Sobreiro, Regina Ferreira

- *50.Quality of working life and turnover intentions: a case study applied to the district hospital of Santarém*

Susana Leal, Isabel Borges

- *51.Quality of working life and burnout syndrome: a case study applied to technicians in radiology*

Susana Leal, Ângela Barros e Cunha

- *52.Quality of life of patients undergoing hemodialysis treatment: a case study*

Ana Póvoa, Susana Leal

- *53.How sports results affect the cryptocurrencies valuation: a case study of the Porto football club fan token*

Alan Ferreira, Vítor Condelpes, Pedro Sobreiro

### **16:30 – Oral Communications 2 - Education and Training**

Local: B.1.38 | Moderator: Mário Espada

- *54.The 2D:4D as a potential predictor of training load and physical fitness variations of youth football players*

Rui Miguel Silva, Filipe Manuel Clemente, Ana Filipa Silva, Francisco González-Fernández

- *55.Police training for sports hall events*

Sónia M. A. Morgado, Luís Neves, Pedro Sequeira

- *56.Characterization of external load and well-being in an amateur soccer team*

Nuno Nobre, Nuno Loureiro, Rafael Oliveira

■ *57. Professional football players perception about the training process*

Zakariaou Kone, Valter Pinheiro, José Vasques, Fernando Santos

■ *58. Teaching physical education through the Fun Activities in Sport method*

Valter Pinheiro, Bruno Baptista, Fernando Santos

**- 20:00 – OFFICIAL DINNER -**

**FEBRUARY 24TH**

**09:30 – Conference 3 [Auditorium 2] FERNANDO GONZÁLEZ-ANDRÉS**

*University of León*

Title: Agriculture and the Green Deal: Study cases to achieve a healthy food system for people and planet

Moderator: Paula Ruivo

**10:30 – Roundtable 2 [Auditorium 2] BEATRIZ URBANO AND PEDRO CARVALHO**

Moderator: José Rodrigues

**11:30 – COFFE BREAK and Poster Session 2**

■ *59. Rating of perceived exertion in small-sided games. An analysis in youth and senior soccer players*

João Martins, João Silva, João Brito, Rafael Oliveira

■ *60. Relationship between perceived exertion and wellness in soccer players*

João Negreira, Miguel Leocádio, Ricardo Abreu, João Brito, Rafael Oliveira

■ *61. Associations among maturity, accumulated work-load, physiological, and body composition factors in youth soccer players: a comparison between playing positions*

Hadi Nobari, Özgür Eken, Pablo Prieto-González, João Paulo Brito, Rafael Oliveira

■ *62. Self-refereeing in ultimate frisbee during joint junior ultimate championship (JJUC2022) preliminary results*

José Amoroso, Luís Coelho, Henrietta P, Guilherme F, Wouter Cools, Efstathios C, Felipe Costa

■ *63. Sport injuries in portuguese female soccer players*

Mário A. Rodrigues-Ferreira, António Vences-Brito, Félix Romero, Nuno Loureiro, Wojciech Cynarski, Maria António Castro

■ *64. GAP WOMEN*

Teresa Figueiras, Nuno Pimenta, Cláudia Pinheiro

■ *65. Drowning and reduce measures*

Henrique Frazão, Alexandre Tadeia, Carlos Mata

- 66. *Understanding the double facet of motivation on enjoyment and body image in fitness club exercisers*  
Rogério Salvador, Ruth Jimenéz, Diogo S. Teixeira, Luis Cid, Diogo Monteiro
- 67. *Lipidic and glycemic profile of active older women changes after two months of detraining?*  
Ana Pereira, Ana Figueira, Teresa Figueiredo, Hugo Louro, Raul Dominguez, Mauro Mazini
- 68. *Effects of two months of detraining after eight months of multicomponent exercise program in the hemodynamic profile of older women*  
Ana Pereira, Ana Figueira, Teresa Figueiredo, Hugo Louro, Raul Dominguez, Mauro Mazini
- 69. *Analysis of the Reliability of the Method of information and assessment for walking trails (MIA\_WT)*  
Carlos Mata, Luís Carvalhinho
- 70. *Walking routes assessment. case study “PR2 - Chãos Alcobertas”, from the natural park of Seras de Aire e Candeeiros*  
Luis Carvalhinho, Carlos Mata
- 71. *Can 8-weeks of strength training promote improvements in functional capacity and hemodynamic profile of older women with pre-hypertension?*  
Luís Leitão, Ana Pereira, Ana Figueira, Teresa Figueiredo, Hugo Louro, Raul Dominguez, Mauro Mazini
- 72. *A systematic review of the exercise effects on the cognitive abilities of older people*  
José Pedro Amoroso, Guilherme Eustáquio Furtado
- 73. *Association between sleep and quality of life of college students*  
Maria Conceição Farinha, Luís Pedro Ribeiro, Maria Adelaide Paiva, Maria Céu Neves, Tânia Gonçalves, Anabela Ribeiro
- 74. *In-season internal training load and wellness quantification of under 15 and 17 goalkeepers*  
Renato Fernandes, João Paulo Brito, Francisco Silva, Rafael Oliveira

#### 12:15 – Conference 4 [Auditorium 2] MANUEL LOPES

*University of Évora*

Title: Self-care and quality of life: Empirical and conceptual dimensions and implications for health policies

Moderator: José Amendoeira (Individual and Community Health)

#### - LUNCH BREAK -

#### 14:30 – Conference 5 [Auditorium 2] CARLOS GUTIÉRREZ-GARCÍA

*University of León*

Title: The contribution of martial arts and combat sports to quality of life in children

Moderator: Fernando Santos

### **15:30 – Oral Communications 3 - Physical Activity and Healthy Lifestyle**

Local: Auditorium 2 | Moderator: Raúl Antunes

- *75. Advertising campaigns as an agent of social and cultural change: an approach to the potential of an advertising video as an instrument to promote physical activity and quality of life – the ASICS case study*  
Daniela Jesus Silva, Ivone Ferreira
- *76. Effects of 24-week exercise program on quality of life in individuals with intellectual and developmental disabilities*  
Miguel Jacinto, Diogo Monteiro, Raul Antunes, Maria João Campos, José Pedro Ferreira, Rui Matos
- *77. Physical exercise and cognition in elderly people*  
Rui Bessa, Jorge Soares, Luis Leitão, Ana Pereira
- *78. Effects of active breaks intervention program on administrative workers*  
Beatriz Rodrigues, Cristiana Lameira, Rodrigo Mendes, João Almeida, Margarida Pocinho, Gonçalo Dias, Rui Mendes
- *79. Sport and physical activity in health policy*  
Ana Catarina Galvão, André Barata, Sandra Duarte, Alfredo, Silva

### **15:30 – Oral Communications 3 - Individual and Community Health**

Local: B.1.35 | Moderator: Marta Rosa

- *80. Yoga breathing techniques' heart rate variability: characterization project for health non-clinical intervention and personal use*  
David Catela, Júlia Santos, Joana Oliveira, Isabel Piscalho
- *81. Healthy aging and quality of life: a scoping review*  
José Amendoeira, Marta Rosa, Mário Silva, Regina Ferreira, Hélia Dias, Alcinda Reis, Maria do Carmo Figueiredo, Teresa Coelho
- *82. Sexuality education in nursing - dimensions and meanings*  
Hélia Dias, Conceição Santiago, Teresa Carreira, Olímpia Cruz, Sara Palma
- *83. Empowerment, quality of life and the person-centered model in chronic disease*  
Elisabete Luz

### **15:30 – Oral Communications 3 - Education and Training**

Local: B.1.37 | Moderator: Isabel Dias

- *84. The annual planning of a sporting season in Under-19 teams of national football championships*  
João Palma, Tiago Machado, Valter Pinheiro, Bruno Baptista, José Vasques, Fernando Santos
- *85. What ex-professional football players think about the football training process*  
Diogo Guerreiro, Valter Pinheiro, Paulo Malico Sousa, José Vasques, Fernando Santos

■ *86.Coach Education - Pathways and Possibilities*

Gonçalo Carvalho, Pedro Sequeira

■ *87.FITEENS - Promoting physical activity and healthy habits in sedentary teenagers*

Luis Garcia-Gonzalez, Ángel Abós, Filipe Rodrigues, Gonçalo Carvalho, Luis Cid, José Rodrigues

**15:30 – Oral Communications 3 - Education and Training**

Local: B.1.38 | Moderator: Nuno Amaro

■ *88. The physical demands of match-play in academy and senior soccer players from the Scottish premiership*

Ryland Morgans, Eduard Bezuglov, Patrick Orme, Kyler Burns, Dave Rhodes, John Babraj, Rocco Di Michele, Rafael Oliveira

■ *89.Ultimate frisbee players: competitive with good spirit - overview*

José Amoroso, Luís Coelho, Guilherme Eustáquio Furtado, Felipe Costa

■ *90.Adapted physical activity: curricular internship in the 1st cycle of basic education with autism spectrum disorders*

António Faustino, Filipa Grazina, Joel Ferreira, Nuno Carreiro, Micaela Rodrigues

■ *91.Adapted physical activity: curricular internship in the 2nd and 3rd cycles of basic education with children with autism spectrum disorders*

António Faustino, Catarina Farias, Soraia Carriço, Nuno Carreiro, Micaela Rodrigues

■ *92.Reflection on curricular internship in adapted sport: reflection sheets*

António Faustino, João Maia, Rafael Cerveira, Pedro Pires

**17:00 – Close of event**



# INITIAL STATEMENT

**José Fernandes Rodrigues**

ESDRM-IPSantarém; Coordinator of LQRC-CIEQV

## **ABSTRACT:**

The scientific research in societal areas of impact for the community, as a living and evolving organism, lacks value at the eyes of public opinion and the responsible for the development of scientific knowledge in Portugal.

This argument has only one purpose, which is to contribute to a better clarification and classification of the scientific activity of the Life Quality Research Centre (CIEQV).

We present our reflection about the multidisciplinary scientific research and its implications in the evaluation processes of research centers, knowing that this topic has been discussed and considered by the “Fundação para a Ciência e Tecnologia” (FCT). In addition, this topic is currently on the agendas of the scientific organizations and the science leaders in Portugal and worldwide. The CIEQV is a research center in a consortium (IPSantarém/IPLeiria/IPSetúbal) whose external evaluation has been good, and which in this last cycle (2018-2022) has grown and reached a very significant national and international dimension. It is composed of 72 PhD members, senior and junior researchers, has 17 PhD students, and dozens of external collaborators. It has had a scientific production with more than 200 articles per year (150 JCR) and other works and actions of importance to society, within the scope of the Quality of Life.

The CIEQV is organized into scientific areas, although the multidisciplinary teams multiply its matrix and research projects, seeking to look at the research problems from a multidimensional and inter sectorial perspective. In this way, the research teams are made up of researchers and specialists who work in different scientific areas.

This scientific investigation carried out and published by the members of the CIEQV has multidisciplinary characteristics and is oriented towards knowledge in the thematic area of the Quality of Life. Its five scientific areas intersect in the space of Social Sciences, with the mission of improving citizens' lives through the knowledge produced and valued practices.

The previous candidacy, in 2018, was designed within the scope of Social Sciences. Not finding space in the ta-



xonomy for affiliation to any of the existing subareas, it was decided to select the category “other social sciences”. However, the FCT appointed an evaluation jury for the subcategory “educational sciences”, thus placing the CIEQV in a subarea that does not correspond to the typology of the research carried out, which is manifestly multidisciplinary (various scientific areas) and thematic (Quality of Life). This incongruity is even manifested in the report of the evaluation committee.

It is the FCT itself that, on its website, regarding the announcement of the evaluation of the Research Units (<https://www.fct.pt/apoios/unidades/index.phtml.pt>), says that “The research units represent a fundamental pillar in the consolidation of a modern and competitive scientific system. They must gather a critical mass adequate to their mission and promote creative environments, in which new ideas can emerge and where researchers find the appropriate conditions to carry out their scientific projects and to the development of their career. Whenever applicable, they must gather interdisciplinary and multidisciplinary resources that enhance the approach to complex problems and new societal challenges” (emphasis added).

Now, it is precisely in this inter and multidisciplinary dynamic that we would like FCT to consider our area

and dynamics of action. All the scientific areas that make up the CIEQV (Physical Activity and Healthy Lifestyles; Organizational Dynamics; Education and Training; Food Production and Food Technology/Behaviour; Individual and Community Health) contribute to the aim of promoting the Quality of Life of people in general. Sometimes, the focus is more salutogenic; at other times, the gaze is pedagogical. Attention can be focused on the dynamics of institutions that allow them to serve their customers in the most appropriate way or, from another perspective, studying how adequate nutrition and well-oriented physical activity can contribute to the much-desired Quality of Life, itself composed of multiple valences, some more physical, others more psychological and emotional, others even more relational and environmental.

Thus, we conclude with the determination that the affiliation of CIEQV to its true essence, corresponds to the thematic area of Quality of Life, as a Centre inserted in the large sector of Social Sciences, influencing its results for society. We think that this is the only way that we will be the target of a fair and adequate evaluation, safeguarding the diversity of subareas existing in the center and the inter, trans, and multidisciplinary nature of the scientific research carried out and published.



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**CONFERENCES**

# The potential of team sports for global health promotion and well-being

**Magni Mohr**

University of Southern Denmark, Denmark

## **ABSTRACT:**

During the last two decades the perception of team sports such as football has changed markedly. From solely being a game that primary involves competitive athletes, team sports are now also viewed upon as means to health promotion and treatment of lifestyle diseases. For example, have strong meta-analysis evidence demonstrated that football training, when delivered as small-sided games, is a motivation exercise modality that improves cardiometabolic and muscle-skeletal health in children, adults, and elderly, as well as various patient groups. In addition, participation in team sports improves both physical and psychological wellbeing, as well as quality of life in populations across the lifespan. Thus, the broad-spectrum health and wellbeing impact of team sport participation can be used as an efficient tool for global promotion of health and wellbeing. The accumulation of strong scientific evidence of the beneficial effects of team sports training for health and wellbeing has led to innovative initiatives where the research findings have been translated into sports concepts for populations ranging from young children to elderly. The presentation will cover the overall effects for these team sport concepts on health, wellbeing, and quality of life for populations across the lifespan, including frail populations such as patients, elderly and socially disadvantaged. Moreover, examples will be given on how translational research in team sports can be applied to target global challenges associated with health and wellbeing.

# Re-assessing the usefulness of the 'Sporting Capital' concept to capture sports participation?

**Jonathan Grix**

Manchester Metropolitan University, United Kingdom

## ABSTRACT:

In the world of sport participation and physical activity, nothing has puzzled researchers more than to understand why people take part in sport or not, which barriers and enablers exist in society to taking part and what is the best way to measure sport 'participation'. The answer to these questions is important, given that obesity rates globally have almost tripled between 1975 and 2016 and cardiovascular diseases – as a result of a raised BMI – are the highest cause of death globally. Furthermore, it is also of sociological significance, given that sport is an emerging form of cultural capital and increasingly used as a means of social reproduction and mobility in society (Bourdieu, 1978). Sport participation and physical activity are crucial then for public health and education, thus the higher the levels of sport participation and physical activity among citizens, the healthier is that country as a whole. This paper takes as its starting point the UK Government's recent report on Grassroots participation in sports and physical activity which outlines the failure of Sport England to raise participation levels in England, following the 2012 Olympics, despite spending some £323 million each year since 2015 to achieve this. In this paper we seek to revisit the notion and unfulfilled potential of the term 'sporting capital' and attempt to re-configure it in relation to both social and cultural capital with the purpose of imbuing the concept with more empirical purchase than it currently has. Building on Rowe's work, we seek to present a refreshed 'sporting capital' concept that goes some way to answering the questions posed above. Finally, we conclude by arguing that a focus on 'sporting capital' and building its stocks in citizens will have a far greater long-lasting impact for the nation, than simply putting more resources into a broken model of trying to raise sport participation levels.

# Agriculture and the Green Deal: study cases to achieve a healthy food system for people and planet

**Fernando González-Andrés**

Research Group on Chemical and Environmental Engineering and Bioprocesses (IQUIMAB).  
Institute of Natural Resources, Environment and Biodiversity. University of León, Spain

## ABSTRACT:

As a response to the climate change and environmental degradation, the European Commission has given birth to the so-called “European Green Deal” (EGD) with the aim of transforming the EU into a modern, resource-efficient, and competitive economy, which in general terms will improve the welfare of present and future generations (EU, 2019). However, such a theoretical musing needs from a workforce with the competencies to design the required innovations and deliver the solutions needed. Unfortunately, Europe is suffering from a general lack of specialists able to design and implement solutions and specially of engineers, which seriously obstacle the sustainable transformation in Europe (Ogunshakin and Bergman, 2022). As a consequence, the theoretical frame is valuable and promising but it must be landed in concrete actions. The objective of this work is to present specific actions that have been designed to materialize the EGD in Agriculture. The innovative actions here presented are already in the market or in an advanced Technology Readiness Level (TRL), as a result of the joint R&D&I by researchers, biotechnologists, engineers, policy makers and other stakeholders to provide specific solutions for the welfare of the society. In Agriculture, the EGD aims to achieve a healthy food system for people and planet. The specific goals are: i) to ensure food security in the face of climate change and biodiversity loss; ii) reduce the environmental and climate footprint of the EU food system; iii) strengthen the EU food system’s resilience; iv) lead a global transition towards competitive sustainability from farm to fork. The technological solution presented here is the improvement of the crops yield using alternatives to chemicals, both for crops nutrition and to control the pests and diseases in crops. Such inputs are based in phyto-stimulant molecules, and in microbes that can act as plant growth promoting agents and as biocontrol agents, contributing, in a Circular Economy basis, to reduce the use of chemical, the carbon footprint of the agri-food system, the risk of soil and water contamination, and thus improving the health of humans and ecosystems (Barquero et al., 2019). This solution interacts with the aforementioned four goals in greater or lesser extent, and thus contribute to improve the society welfare in the terms considered by the EU. The technology based on biostimulants and biocontrollers have burst into the agri-food sector and the EU has regulated the use of them with the Regulations (EU) 2019/1009 and 2016/2031 respectively. There are plenty of evidence on the effect of such products in the crops yield increase but, how can we evaluate the environmental effect of the partial replacement of chemicals by biological products? Life Cycle Assessment (LCA) is the methodology to evaluate the environmental impact, and it has been useful also to demonstrate that the “zero miles agriculture” in areas with desfavoured agro-climatic conditions can be more environmentally impacting than “long distance agriculture” in areas with mild climate. Thus, the investment on technological innovations aimed to reduce the environmental impact in the areas more suitable for agriculture is preferable than moving the agricultural production closer to the larger consumption centers (Urbano et al., 2022).

# Self-care and quality of life: Empirical and conceptual dimensions and implications for health policies

**Manuel Lopes**

S. João de Deus School of Nursing, University of Évora, Portugal

## **ABSTRACT:**

Self-care is conceptualized as the ability of individuals, families, and communities to promote health, prevent disease, maintain health, and cope with diseases and disabilities with or without the support of a health care provider. Self-care is proposed as a health determinant and the respective conditioning dimensions are presented. Quality of life is conceptualized and its relationship with self-care is empirically demonstrated. The recommendations of international organizations regarding self-care and quality of life in public health policies are introduced. The relevance of self-care is empirically demonstrated taking into account the epidemiological characteristics of the Portuguese population, particularly with regard to multimorbidity and dependence. It is compared with its expression in some strategic health planning documents in Portugal. We conclude with the presentation of some recommendations, particularly those issued by the World Health Organization.

# The contribution of martial arts and combat sports to quality of life in children

**Carlos Gutiérrez-García**

Department of Physical Education and Sports, University of León, Spain

## **ABSTRACT:**

Martial arts and combat sports (MA&CS) are widely practiced worldwide. This umbrella term encompasses many subcategories and hundreds of styles, having as common feature that they “... blend the physical components of combat with strategy, philosophy, tradition, or other features that distinguish them from pure physical reaction” (Green, 2001, p. xvi). Strongly influenced by Japanese exoticism and the development of Japan as an international power, by the end of the 19th century a strong social imaginary was soon created, which included their consideration as educational means, both at the physical and moral level. Nevertheless, it was not until several decades later that the effects of MA&CS practice started to be examined from a scientific perspective. In addition, only a small part of research on MA&CS has been focused on children; on the contrary, sport performance and MA&CS as health and complementary therapies for the elderly and special populations are nowadays the main trends in this field of research. Despite these limitations, positive effects of MA&CS practice on children’s physical fitness have been constantly reported, while its effects at the social-psychological level are still uncertain. For all these reasons, it is important to generate more and better evidence on the conditions and factors leading MA&CS programs to positively contribute to children’s quality of life, especially at the social-psychological level.







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# ROUND TABLES

## Inclusion and Quality of Life

**Marianne Pitkajarvi<sup>1</sup>**

**Harry Daniels<sup>2</sup>**

**Antonino Bianco<sup>3</sup>**

<sup>1</sup>School of Rehabilitation and Examinations, Metropolia University of Applied Sciences, Helsinki, Finland

<sup>2</sup>Department of Education, University of Oxford, United Kingdom

<sup>3</sup> School of Sports Science, University of Palermo, Italy

The discussion around this round table draws primarily from the participants' experiences and academic work in educational settings. Learners with special needs and learners with multicultural backgrounds are all individual learners who struggle in the mainstream educational systems. Instead of segregation, the current trend is to develop inclusive education, which, in concrete, often means extension and improvement of the quality of support for learning that is available for all learners. However, there is evidence to suggest that such support is inadequate for those with learning challenges, and that this, in fact, does have consequences for the students' quality of life.

Our discussion covers Bernstein's (2000) theory of the three pedagogic rights in a democratic society: The right to intellectual enhancement, the right to be included, and the right to participate. Furthermore, the discussion will touch upon the approaches to the quality of special needs services described by Pfeffer and Coote (1991). Finally, to conclude the analysis and discussion of the chosen theories, the co-constructionist approach developed by Engeström (1997) will be reviewed.

Some of our empirical findings will be discussed in this framework.

# Urbanism and Quality of Life

**Beatriz Urbano<sup>1</sup>**

**Pedro Carvalho<sup>2</sup>**

<sup>1</sup>Department of Agricultural and Forestry Engineering, University de Valladolid, Spain

<sup>2</sup> Faculty of Social Sciences and Humanities, University of Beira Interior, Portugal

Professor Beatriz Urbano presented some of the problems for quality of life of the densely urbanized cities. She classified the problems in four groups such are imbalances in the cycles, building, health, and social problems. Cities are polluted by CO and CO<sub>2</sub>, producing a warming of the atmosphere and the emergence of the greenhouse effect due to the lack of air circulation. There is a decrease in relative humidity and an increase in surface runoff. The urban population in settlements built on marginal land is exposed to landslides and flash floods. The waste cycle shows an increase in urban solid waste rich in organic matter and the land has lost fertility due to salinization. Due to the imbalance between planning and growth, there are deficiencies in the urban planning, and a lack green areas, and the hygienic, formal, constructive, aesthetic and use conditions of buildings are deficient. Some of the social problems arising from dense urbanization are hunger, poverty, exploitation, and hopelessness that can lead to high crime rates, prostitution, lack of appropriate childcare and drug use (FAO, 2010). Among the diseases attributed to the urban environment are, on the one hand, those associated with buildings with unhealthy environments, and on the other hand, sick building syndrome. Then, Pedro Carvalho proposed as a solution, an ecological approach for population settlement and happiness through human activity, movement, and affective social improvement, needed after the pandemic times. After the 70's of the XXth century, Sports became a very important social issue, due to its implications on global policies and economic impacts. The Olympics and a number of regional Games all over several continents contributed to an huge increase of population flows, wanting to attend those Games. These moments became important every year and were used as excellent drivers to develop sport tourism in several regions and places. Therefore, urban and city changes over this century became utmost. Urban Planning got a primordial necessity around the main cities, which wanted to make their candidacies to global organizers of different sports, namely the Marathons, several Sport Championships, with its peaks on World Competitions and the Olympics. The last 20 years of the XXth century, City managers concentrated their attentions on planning new spaces for big events, together with new mobility and accesses to the venues and transport hubs. Later, they understood the need to program the permanent use of those spaces (e.g. the European football championship in 2004). Nowadays we can finally read and discuss these themes under a global and holistic development approach.



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# ORAL COMUNICATIONS 1

- PHYSICAL ACTIVITY AND HEALTHY LIFESTYLES -

# Barriers and motives for physical activity and sports practice among trans people: a systematic review

Joana Oliveira<sup>1</sup>

Roberta Frontini<sup>2,3</sup>

Miguel Jacinto<sup>1,2,4</sup>

Raúl Antunes<sup>1,2,3</sup>

<sup>1</sup> School of Education and Social Sciences, Polytechnic of Leiria, 2411-901 Leiria, Portugal

<sup>2</sup> Life Quality Research Centre (CIEQV), 2040-413 Rio Maior, Portugal

<sup>3</sup> Center for Innovative Care and Health Technology (ciTechCare), Polytechnic of Leiria, 2411-901 Leiria, Portugal

<sup>4</sup> Faculty of Sport Sciences and Physical Education, University of Coimbra, 3004-504 Coimbra, Portugal

## Correspondence

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## ABSTRACT:

The practice of physical activity (PA) and physical exercise (PE) has several physical and psychological benefits and is an important coping mechanism that helps trans individuals deal with the gender identification process. However, the trans population tends to have lower levels of PA when compared to the cis population. The purpose of this study is to analyse the research conducted between 2016 and 2021, regarding barriers and motives for the practice of PA, PE, and sports among trans individuals. This systematic review was carried out between January 2022 and April 2022, by searching 3 databases (Web of Science, PubMed and Scopus) and following the PRISMA guidelines. The search strategy terms used were “transgender”, “transsexual”, “trans individual”, “trans people”, “gender identity disorder”, “gender dysphoria”, “gender disclosure”, “gender non-conforming”, “physical activity”, “exercise”, “sport”, “barriers”, “obstacles”, “facilitators”, “determinants”, and “motives”, in combination with the Boolean operators “AND” or “OR”. From a total of 69 studies, only six were included for analysis. These studies revealed the existence of several barriers, which were classified as internal and external. Internal barriers are related to body dissatisfaction and discomfort, discrimination, and fear of other people’s reactions. Sports environment, PE environment, and sports participation policies and regulations are the main external barriers reported. The most important motives for the practice expressed by trans individuals are the desire to achieve a specific physical form and the role that PE plays in the preparation and/or replacement of gender-confirming surgery. This study highlights the importance of continuing to fight the barriers encountered in the practice of PE and sports, suggesting the main motives that could help create better interventions, plans, and inclusive policies that may help promote its practice.

**Keywords:** *Transgender; Barriers; Motives; Exercise; Sport.*



## Matematicativa – classroom project-based physical activity for quality-of-life improvement in children

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### ABSTRACT:

Physical activity (PA) levels in Portuguese children are below the recommendations of the World Health Organization and should be increased to improve their health and quality of life. In primary schools, children reveal difficulty in learning contents related to mathematics subject. Covid-19 made the situation even worse, decreasing PA levels and increasing learning difficulties. “MatematicAtiva” is a classroom project-based PA, with the main goal of increase PA levels in children. This project is being implemented in a 2nd year class of a primary school, with 11 students in each group (control and intervention). The intervention has 12 weeks, with a weekly math class of 45 minutes, in which the intervention group perform PA using math contents during games and activities, while control group are submitted to the same math contents but seated in a classroom. To assess steps performed in the intervention day, both groups used a pedometer. To assess learning math contents, and initial math diagnostic test was performed, and a final will be done. At this moment, 4 weeks of the intervention program are completed. After confirming the normality of data, t-test was used to compare the means of the two groups and effect sizes was calculated. Significant differences were found between groups, with a medium effect size (.76), having the control group a mean of  $4870.72 \pm 1100.90$  steps and the intervention group a mean of  $7377.07 \pm 1076.03$ . Results related to learning math content will be evaluated at the end of the program. The provisional results show a daily increase of PA in the intervention group, which is important for children comply the guidelines regarding the amount of daily PA and, consequently, improve their health and quality of life.

**Keywords:** *MatematicAtiva; Children; Physical activity; Classroom-based Physical activity; Quality of Life.*

# The inclusion of people with disabilities in gyms: the perspective of professionals

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## ABSTRACT:

The inclusion of people with disabilities (PwD) in fitness activities needs to be characterized in Portugal. The contextual perception of fitness professionals is crucial as they play a key role in terms of inclusion. The present study aimed to characterize the contextual perception of professionals in the inclusion of people with disabilities in the fitness market. An survey was made available online, on google forms platform with the link sent by email, with questions adapted from different bibliographic sources to which 68 physical exercise technicians responded. With a mean age of  $37.94 \pm 11.29$  years, 55.9% are female and 44.1% male. The entire sample (100%) agrees with the inclusion of PwD in fitness spaces and 67.4% reported having experienced intervention with this type of population. The most mentioned types of disability were motor disabilities (23.5%), intellectual, developmental, and motor disabilities (10.3%). The desire to work with PwD is expressed by 85.3% of professionals who, however, consider not having the necessary specific training (76.5%). Mostly, professionals classify their knowledge between a poor and reasonable level, which demonstrates to a self-diagnosis that it can itself be a barrier to intervention, similarly to what has been reported in similar studies. There is a predisposition to work with PwD in a consolidated way, being self-rated as good or very good by most of the participants, which shows that there is openness to include and work with this type of population, contrary to different approaches found in other works. The surveyed fitness professionals are predisposed to work and play an active role in the inclusion of PwD in fitness activities, diagnosing specific training as a fundamental factor.

**Keywords:** *Inclusion; People with disabilities; Fitness; Fitness professionals.*

# Repeatability of brain activity as measured by a 32-channel EEG system during resistance exercise in apparently healthy young adults

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## ABSTRACT:

Mounting evidence suggests that the central nervous system's neurochemical changes induced by exercise-derived metabolites are linked to systematic modulations of brain function (Basso and Suzuki, 2017). In this respect, electroencephalography (EEG) has emerged as a feasible application with a high degree of mobility and outstanding temporal resolution (Park et al., 2015). Still, post-exercise EEG has so far provided the only valuable insights into short-term exercise-induced modulations of brain function (Gramkow, et al., 2020), as EEG data obtained during performance have been limited to 'closed sports' (e.g., shooting, archery, etc.), wherein muscle and movement artifacts are not detrimental (Gwin, et al., 2010) to the quality of the signals. Therefore, this study aims to evaluate the repeatability of brain activity as measured by a 32-channel EEG system during resistance exercise (leg press) in apparently healthy young adults. The observational study had thirty physically inactive participants aged between 18 and 25 years old ( $n = 15$  females and  $n = 15$  males) (Beck, 2013). Participants could not be involved in federated sports or practice regular physical activity at the date of the study or the previous 6 months (WHO, 2010). Inter-day repeated measurements demonstrated an overall good and similar repeatability for all EEG bands across exercise conditions as the intraclass correlation coefficient was  $> 0.75$  and the corresponding 95% confidence interval overlapped between exercise conditions, respectively. The repeatability of EEG bands, when stratified by sex, was also good and similar among males and females for all exercise conditions under study. All EEG bands showed an inter-day bias close to zero considering the total sample and when grouped by sex. Bland-Altman plots of inter-day repeated measurements suggested that there was no over-proportional bias for EEG bands across all exercise conditions, but 95% limits of agreement were wider, in general, for delta and theta bands. In summary, the 32-channel EEG recording cap can be used as a reliable measure during controlled exercise.

**Keywords:** *Electroencephalography; repeatability; exercise; resistance training; Emotiv Flex 32 channels.*

# Changes in physical fitness of first year sport students – a 4-year evolution perspective

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## ABSTRACT:

The concept of physical condition is complex to define, combining physical fitness and health and relating to the practice of physical activity. Despite the known benefits, the already high levels of sedentary lifestyle of higher education students have been increasing and, consequently, the values of physical condition decreasing. The aim of this work is to assess the evolution of the physical condition of first year Sport students in higher education. The sample consisted of 126 students from four different years. The following measures were used: Body composition was assessed through bioimpedance, VO<sub>2</sub> max was assessed with the Yo-Yo Intermittent Test, maximum handgrip strength with a handheld dynamometer, anaerobic power, and capacity through the Running Anaerobic Sprint Test “RAST”, lower limb flexibility, vertical impulsion with the Countermovement Jump performance assessment, and the T-test was used for agility. Two multiple comparison tests were used to analyze the values obtained by the students of the sample. Results: A gradual decline in the VO<sub>2</sub> max was found for the students of 2018 vs 2021 ( $F=4,76$ ;  $p=0,01$ ;  $\eta^2=0,11$ ; average effect size). A decrease in RAST outputs, namely Relative Maximum Power ( $F=3$ ;  $p=0,03$ ;  $\eta^2=0,07$ ; average effect size) and Fatigue Index ( $F=3,19$ ;  $p=0,02$ ;  $\eta^2=0,07$ ; average effect size) was also verified between these groups. The decline in the students' physical fitness values was confirmed only in some of the analysed dimensions, maximal VO<sub>2</sub> being the most notorious. This situation may be explained by the low practice of regular physical exercise.

**Keywords:** *Physical fitness; Physical Activity; Physical condition; University students.*





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# ORAL COMUNICATIONS 1

- EDUCATION AND TRAINING -

# Is futsal a mediator for football integration? A physiological and technical-tactical analysis of the under-13 age group

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## ABSTRACT:

The aim of the present study was to analyze the physiological and technical-tactical indicators of a football team during the participation in two representative tasks designed to replicate the sport-specific environment: football and futsal. Fourteen young male football players were evaluated ( $12.90 \pm 0.36$  years old; body mass:  $44.81 \pm 8.91$ ; height:  $157.40 \pm 8.88$ ), in four moments: in the first, anthropometric and maturity characteristics were evaluated, as well as the yo-yo intermittent recovery test level 1, to calculate the HRmax of the players. In the second and fourth moments, technical-tactical and physiological data were respectively collected in each one of the domains, and the third session aimed at familiarizing with other-domain task, i.e., futsal. Only two players per game used the Zephyr Bioharness to record physiological data, and all of them reported a subjective perception of effort. Technical and tactical data were recorded using a video camera and subsequently analyzed by two observers using the Game Performance Assessment Instrument (GPAI) and the Movement Awareness and Technical Skill Instruments (MATS). Intra-rater analysis showed no differences for both the MATS and the GPAI, while inter-rater analysis revealed significant differences for unsuccessful shooting, 1st touch passing, successful shooting, tackle, forward direction of movement, and stationary movement in the MATS instrument. The results for the comparison between representative tasks showed significant differences for the following variables: Reception at first touch ( $Z = 2.293$ ;  $p = 0.028$ ;  $r = 0.662$ ); Pass at first touch ( $Z = 2.688$ ,  $p = 0.010$ ,  $r = 0.776$ ); Pass at first touch unsuccessful ( $Z = 2.858$ ,  $p = 0.006$ ,  $r = 0.825$ ); Unsuccessful pass ( $Z = 3.121$ ,  $p = 0.003$ ,  $r = 0.901$ ); Forward direction of the ball ( $Z = 2.144$ ,  $p = 0.040$ ,  $r = 0.619$ ) and Side direction of the ball ( $T = -2.988$ ,  $p = 0.019$ ,  $d = 1.743$ ) showing higher values for futsal than football. The results indicate that futsal is probability a sport that promotes talent development for young football players. Future research should include futsal players to confirm the positive effects of futsal skills on football in youth players.

**Keywords:** *Development; Talent; Performance; Skills, Practice.*



# Be Like an Athlete - BLA

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## ABSTRACT:

Be Like an Athlete - BLA, is an Erasmus+ Sport project that combines the objectives of drawing a social psychological profile of student-athletes involved in dual careers programs. The aim is to improve sport and school results of those involved in dual careers programs, while enhancing the balance of these two contexts. Direct participants are student-athletes from 14 to 18 years of age involved in dual career programs. Coaches, teachers, and parents are an indirect target group. Regarding methods, the project started by validating the Social Psychological Profile Questionnaire – SPPQ (Output 1) in 5 languages (English, Portuguese, Italian, Spanish, and Swedish). This questionnaire after being applied to the direct group, led to the BLA Socio-Psychological Common Profile (Output 2), which is based on a survey sample of student-athletes of 14-18 years old involved in dual careers programs in 2021 from the partner countries (n=1192, females=527, males=657, age mean 16,4). The BLA profile includes wellbeing, resilience, passion for school, passion for sport, career planning, social competencies, and management variables. This profile is the basis for the development of the mobile application (App) (Output 3) that is right now under construction, as well as for the creation of the BLA eBook guidelines (Output 4). This App will help student-athletes to understand, strengthen and monitor their sociopsychological competencies. The eBook guidelines will act as a support network for all those working with these student-athletes.

**Keywords:** *Dual career; Youth; New technologies; Sociopsychological Competencies; Student-athletes.*

# RePLAY2.0

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## ABSTRACT:

Reinforce peer Education Program Leadership, Action, Youth: promoting grassroots sport through E-Learning educational training success and social inclusion with academic preparation – RePLAY2.0, is an Erasmus+ Sport project that aims to promote a high-quality mentoring program between sport universities students and young volunteer coaches of grassroots sport organizations that work with young people and children coming from disadvantaged and less active groups, enhancing their capacity to promote social inclusion through grassroots sport. The main target group are (under 30 years old) of grassroots clubs. This project also addresses sport university students, who will act as mentors of young volunteer coaches. Regarding methods, the project started by developing a survey (Output 1) to access the main needs of young volunteer coaches, to develop their skills with kids and children from disadvantaged groups. A total of 559 participants from 6 countries (Portugal, France, Spain, Italy, Serbia, and Sweden (n= 559)), responded to the survey. The results of the survey provided the data to develop the mentoring program handbook (Output 2), focusing on the following themes: children's rights – safeguarding and protection, make your coaching more inclusive, manage challenging behavior, promote children and youth positive development, supporting athletes in pressured situations, planning training programs, showing good leadership, communication skills and assessing sociopsychological skills. At the moment, an open access training platform is under progress (Output 3).

**Keywords:** *Young volunteer coaches; Inclusion; Grassroots; Mentoring; Sport skills.*

# Profiles of stress adaptation in students: relations with coping and burnout

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## ABSTRACT:

The activity of student in higher education contexts can represent a stressful experience, due the need of students to adapt to new roles and responsibilities. In consequence, some studies indicate that when students experience higher levels of stress, they are more exposed to feelings of anxiety and depression. Thus, it becomes important to analyze the stress experience of students and potential relations with other important variables involved in the adaptation process to higher education, as is the case of cognitive appraisal, coping, and burnout. This study analyzed whether different profiles of stress and cognitive appraisal corresponded to differences in students' coping and burnout. The sample included 547 students, 267 from four university courses, aged between 17 and 52 years ( $M = 20.6$ ;  $SD = 4.4$ ). The following instruments were used: Primary and Secondary Cognitive Appraisal Scale, Stress Questionnaire for Students, Reduced Coping Inventory, and Shirom-Melamed Burnout Measure. The analysis included three main strategies: descriptive analysis (to test the frequency of stress and coping strategies), cluster analysis (to constitute distinct profiles of stress and cognitive appraisal), and MANCOVA factorial analysis (to test if distinct profiles of stress and cognitive appraisal corresponded to differences in using different coping strategies and in the burnout experience). Data from descriptive analysis indicated that work overload and academic evaluation were the main sources of stress and that students used more frequently adaptive coping strategies to cope with stress. Results from MANCOVA analysis indicated that students with a higher stress profile and a moderately positive cognitive appraisal profile used less adaptive coping strategies and experienced higher levels of burnout. In conclusion, the stress experience and cognitive appraisal represent main dimensions to explain how students adapt to higher education contexts, as already suggested by previous research. Thus, it is important to intervene on students' ability to manage stress and on how they appraise academic activity.

**Keywords:** *Burnout; Cognitive appraisal; Coping; Stress; University students.*

# The effect of cognitive appraisal on teachers' mental health: a multi-group analysis

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## ABSTRACT:

Teaching is a demanding activity and occupational stress has been considered a relevant health problem related to teacher's mental health. The impact of teacher stress on psychosocial wellbeing is well documented in the literature; however, the process underlying the development of occupational stress must be addressed to provide insights on human adaptation to work conditions and stress in schoolteachers. One of such mechanisms is cognitive appraisal, which is crucial to understand human adaptation to stress and is based in the premise that stressful experiences are dependent on the individual evaluation of the relevance of a potentially stressful event for the wellbeing. This study sought to analyze the specific relations between cognitive appraisal and psychological distress, and if that relationship was moderated by gender. A cross-sectional study was conducted in 402 basic and secondary schoolteachers. The evaluation protocol included a Demographic Questionnaire, the Primary and Secondary Cognitive Appraisal Scale, and the General Health Questionnaire-12. The analysis followed three procedures: (1) Chi-square test was used to evaluate the association between gender and the presence of clinical symptoms of psychological distress (i.e., scoring  $\geq 3$  in the GHQ-Total); (2) multivariate analysis of variance (MANOVA) was conducted to evaluate eventual gender differences in cognitive appraisal, and (3) Structural Equation Model was used to analyze the relationship between cognitive appraisal and psychological distress, with psychological health variables as dependent variables and cognitive appraisal variables as independent variables. Results indicated: (1) clinical cases of psychological distress in teachers were prevalent (87%), being observed that male teachers assumed a significant worse psychological profile, showing more clinical symptoms of anxiety/depression than female teachers do; (2) significant main effects for gender were found for challenge perception and coping potential with males assuming more coping potential and females assuming more challenge perception; and (3) threat perception was the strongest predictor of teachers' mental health, and threat perception and psychological distress was stronger in males, and challenge perception predicted psychological distress only in males. In sum, results suggest that educational organizations (e.g., principals) should implement work strategies that make the educational environment less threatening and more controllable for teachers – as by implementing a favorable participative climate.

**Keywords:** *Burnout; Teachers; Cognitive appraisal; Psychological Distress; Gender.*





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# ORAL COMUNICATIONS 1

- MOTOR BEHAVIOR -

# Own drawing of known reduced space and orienteering activity in 4-5 years-old children: exploratory study

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## ABSTRACT:

Differences in spatial exploration influence cognitive mapping, however, children are able to draw spatial organizations. Drawing stage (D) constrains orienteering activity (O)? Sample: 6 children ( $4.83 \pm 0.37$  years old, girls=5), with no experience in O. Luquet (1927/1969) for D; object dimension reduction (R) according to Lange-Küttner (2014); experimental protocol of Carreira et al. (2019) for O. Children without intellectual realism drawing stage (IR) (n=2) made O with photography (F) of the classroom. RI predominates (n=4) relative to failed (n=1) and fortuitous (n=1) drawing stages. In RI, 3 children revealed R. All children completed O, with occasional help ( $4.0 \pm 2.89$  aids), mainly in similar objects ( $1.33 \pm 1.7$  aids). The mean time spent for drawing their classroom was 13 min ( $788.0 \pm 447.6$  s) and for O 12 min ( $740.5 \pm 177.1$  s). All children preferred to leave their drawing, or the F aligned in the starting position, always returning to analyze where to go next. Two children needed occasional help to identify 1-2 objects on their drawing, and 1 required full help to relate F to real objects. No significant differences were found between genders, and between use of own drawing or F. No significant association between D and O capacity was observed. Indifferently, with F or own drawing, preschool children can do O in their classroom, providing inclusion and multidisciplinary (Education for Citizenship, Motor and Visual Expressions). Early stages of drawing are replaceable by F as map for O.

**Keywords:** *Children; Orienteering; Own drawing; Photography; Preschool.*



## Learning the figure 8 knot and social materiality in 7-9-years-old children

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### ABSTRACT:

The execution of knots requires specific mental processes. Their learning can occur in isolation (S) or in the context of social materiality (SM), with functional and cultural association. The aim of the study is to verify if cultural contextualization favors knot learning. The sample consists of 16 children ( $8.37 \pm 0.72$  years old,  $\square=7$ ), without knowledge of the figure eight-knot, and each group (S=7; SM=9) comes from distinct schools. Informed consent was obtained. Acquisition (A) test was made through video from the own perspective, with the possibility, by request, of intercalated visualizations, until 3 consecutive successes were achieved. The following week, the Retention test (R) was performed, in which the knot was requested without viewing the video. Afterward, performed the Transfer test (T), which consisted of visualizing a new video to learn how to tie a new knot, also, with the possibility, by request, of intercalated visualizations. All collections were performed individually without the presence of other children in the room. In A, the SM group significantly needed more visualizations (V) and more total time (TT). Between A and R, the SM group significantly reduced the number of attempts and the TT; and, between A and T the V. In T, group S revealed a significant inverse association of age with TT and with the number of attempts, while in the SM group there were significant direct associations between attempts in A and V in T, and among trials in R and T. There was no difference between genders. Based on associations found in T, the SM group may be influenced by the extrinsic constraint “social materiality”, while the S group seems to be predominantly influenced by an intrinsic constraint, the chronological age. Consequently, there is partial support for the motor learning of this knot based on the concept of social materiality.

**Keywords:** *Figure 8 knot; Motor learning; Social materiality; Constraints; Children.*

# Comparison of motor competence of children that practices athletics with children that practice other sports

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## ABSTRACT:

The present study aimed to compare Motor Competence (MC) of 10 years-old' children practicing Athletics with children that practice other sports, determined by the KTK test. KTK is a gross motor coordination test, centered on locomotor and postural components. Sixty-four children were evaluated, 30 female (15 Athletics:  $10.4 \pm 0.23$  years of age,  $2.5 \pm 1.13$  years of practice; 15 Other Sports:  $10.4 \pm 0.32$  years of age,  $2.8 \pm 0.92$  years of practice) and 34 male (17 Athletics:  $10.3 \pm 0.22$  years of age,  $2.1 \pm 0.88$  years of practice; 17 Other Sports:  $10.4 \pm 0.29$  years of age,  $3.7 \pm 0.59$  years of practice). After normality tests, we used the Student's T test for independent samples. The results reveal that boys who practice Athletics (MC= $113.5 \pm 13.8$ ) present better results of MC ( $p=0.001$ ) than the ones that practice other sports (MC= $94.3 \pm 17.0$ ). The same happened with girls, since girls who practice Athletics (MC= $114.7 \pm 10.24$ ) present better results of MC ( $p<0.001$ ) than the ones that practice other sports (MC= $89.1 \pm 10.89$ ). In the former case, results are even more significative according to the fact that there were significant differences ( $p<0.001$ ) in the years of practice favoring boys that practice other sports ( $3.7 \pm 0.59$  vs  $2.1 \pm 0.88$ ). It's speculated that Athletics favors the development of CM, possibly due to the type of training or work that is performed.

**Keywords:** *Athletics; Children; Motor competence; KTK Test; Gross motor coordination.*

## Card boxes and unstructured play in infants

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This study has a grant from Fundação para a Ciência e Tecnologia UIDP/04748/2020-UIDB/04748/2020

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### ABSTRACT:

In unstructured play children freely explore their own playful activities in self-regulated behaviors. Loose parts play is based on the introduction of moveable materials in children's spaces, with no adult direction. Studies in preschool revealed its potentialities, however, no studies with infants were found. **Sample & Methods:** Eight infants (11.5±1.32 months of age, 7 non-walkers) had free access to 12 differently colored card boxes with graspable dimensions (10cmx20cm), six of them with content to produce sound, and a movable and climbable large one (50cmx80cm). No adult intervention occurred. Informed consent was obtained. Children were videotaped all together, in the child-care setting in one day, for 18 minutes. Behaviors categories were defined by two experts in child motor development. Intra and inter observers' consistency was ensured. **Results:** Infants spent around 70% of distributed time staying still or in displacements without boxes contact. All infants interacted with the boxes, grasping, putting in the mouth, shaking, throwing, banging on or with it, offering or grabbing away, with the small ones; and, standing up, walking sideways and onward, pushing, tilting, rotating, climbing, getting down, with the bigger one. A mean frequency of 9.88(±4.78) different behaviors occurred, representing 35% of the total. **Discussion:** Card boxes afforded infants to autonomously do explorative and physical play through fine and gross motricity, as to reveal some positive and negative non-verbal interaction. Apparently passive or no interactive behaviors may have an important role on free play. The results support the potentialities and the applicability of loose parts play model with infants, including with only one type of object, card boxes, although with varied dimensions, colors and produceable sounds.

**Keywords:** *Loose parts; Unstructured play; Infants; Motor behavior.*

# Finger injuries on climbing: a systematic review

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## ABSTRACT:

The practice of climbing is recent, however, has been increasing in Portugal. Investigations in this area are few because this sport is still a novelty for many. This systematic review aims to compare the literature that has been published in the last twelve years on injuries to the hands and fingers in climbing through a review of studies and comparing their results. The methodological design used in the review was according to the Preferred Reporting Items for Systematic Reviews and MetaAnalysis (PRISMA) method. The research was carried out using the keywords “Rock Climbing”, “Injuries” and “Fingers” on the B-On platform, considering the criteria of inclusion and exclusion for eligibility.

Results: The prevalence of injuries ranges from 20% in a heterogeneous mixed climbing population to 80% among experienced climbers. As for the most common and frequent injuries, such as pulley tears and breaks, pulley injuries are the most common, yet flexor pulley injuries, followed by fractures and deformities are the most frequent injuries affecting the hand in this practice. An overall decrease in upper extremity injuries, finger pulley injuries and epicondylitis were identified, an increase in lower extremity injuries, knee injuries, shoulder dislocations and finger growth plate injuries. We also found that the digital flexor pulleys can maintain the flexor tendons beneficially and close to the bone and that the cartilage is thicker in elite sport climbers than in amateurs and the arthrosis between the sides and both interphalangeal joints are similar.

It seems evident that most of the reported injuries are chronic and the rest are acute due to excessive use of the upper limb, and in particular hand being the most frequent injuries of which the injuries by pulleys of fingers and tenosynovitis of the fingers.

**Keywords:** *Climbing; Injuries; Fingers; Review.*

## Card boxes and peer play in infants: short report

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### ABSTRACT:

Loose parts play is based on the introduction of moveable materials in children's spaces, with no adult direction. Play with peers can be enhanced by the adequation of materials; and it is possible that loose parts (outdoor) play may enhance cooperative play. No studies about effect of loose parts in peer play with infants were found. Sample: Three non-walker infants had free access to 12 differently colored card boxes with graspable dimensions (10cmx20cm), six of them with content to produce sound, and a movable and climbable large one (50cmx80cm). No adult intervention occurred. Informed consent was obtained. Children were videotaped, in the child-care setting for 18 minutes. Howes Peer Play Scale was used. De-scription: A 10-month-old boy crawled to the big box, put his hands on top of the box and stood up; then he started hitting the top of the box; a 13-month-old girl, who was less than 1 meter away, looked at the boy, placed a small box on top of the large one, also stood up next to the boy, as he manipulated the small box, and then they both gave a few steps forward, leaning on the big box; then, the girl sat down; mean-while, an 11-month-old boy, who was less than 1 meter from the big box, looked at the boy (who remained standing up against the box, hitting its top and touching the small box), and, leaning on the top of the box, stood up and began to simultaneously touching the small box, grabbing it and sitting with it, while the first boy remained standing, walking sideways, trying to climb to the top of the box, and walking forward, al-ways leaning on the large box. Reflection: Card boxes afforded emergence of parallel play among two different pairs of infants.

**Keywords:** *Loose Parts; Infants; Peer Play..*



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# ORAL COMUNICATIONS 1

- EDUCATION AND TRAINING -

# Stem outdoor education: an experience to enhance students' learning

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## ABSTRACT:

STEM education is a movement based on the teaching of mathematics, science, technology, and engineering, using an interdisciplinary approach and promoting cooperative work. Outdoor education has also been gaining prominence, particularly with the growing concern over levels of obesity and sedentary lifestyles among the young people. Furthermore, combining physical activity, digital exploration and outdoor play can motivate and enhance science learning. This work focused on the development of two STEM activities, one outdoor mathematics activity, one outdoor science activity and one outdoor STEM activity. These activities were implemented throughout the 2021/2022 school year with 42 sixth-grade students (2nd cycle of basic education), during Mathematics and Natural Sciences classes. Subsequently, students' learning was assessed through individual questionnaires carried out using Plickers®, with an average of 62% of correct answers. Students' answers in the activities worksheets were also analysed and it was found that the correct answers ranged between 71.4% and 91.67%. After the intervention, two focus group interviews were carried out, in each class, in order to understand the students' perceptions regarding the activities. In those interviews, students expressed that they were motivated to learn through STEM and outdoor activities. The results also revealed that students with more learning difficulties and with disruptive behavior manifested that they learned better in these activities, while students with better academic performance and with more appropriate behavior preferred conventional classes, as they considered that they learned more in these activities. Nevertheless, when we compared these results with the analysis of the activity sheets, we found that the performance did not worsen in any of the students of the two classes. These preliminary results reinforce the need for further studies on the impact of these methodologies on student learning.

**Keywords:** *2nd cycle of basic education; Interdisciplinarity; Outdoor education; STEM.*



# Analysis of speed zones in different soccer pitch size

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## ABSTRACT:

Monitoring the training load is essential for coaches to more objectively plan and operationalize training. The aim of this study was to compare the speed zones by manipulating the pitch size in GK+10x10+GK games. The training tasks took place on 1/2, 3/4 and in regular pitch size (official 11-a-side dimensions). 24 young U-17 soccer players (age:  $16.1 \pm 0.76$ ; height:  $1.73 \pm 0.03$  m; weight:  $61.81 \pm 3.54$  kg) participated in the study. The data were collected using WIMU devices that were placed on the back of the trunk with vests specific for this purpose. Data analysis was performed through descriptive statistics, and the comparison between games was made using ANOVA One-Way. It was also calculated the size of made Eta-square ( $\eta_p^2$ ). The results show that there are no significant differences in the three game formats at the level of the lowest speed zones: 0-16 km/h, 6-12 km/h and 12-18 Km/h. Statistically significant differences were observed between the three game formats in the distance travelled in the zones of speed 18-21 km/h, 21-24 km/h, >24 km/h and maximum speed ( $p < 0.05$ ), and it was evident that the larger spaces allow players to travel more distance in high speed running. We found that the pitch size presents a large effect size on the speed zones 18-21 km/h ( $\eta_p^2 = 0.31$ ), 21-24 km/h ( $\eta_p^2 = 0.40$ ), >24 km/h ( $\eta_p^2 = 0.44$ ) and top speed ( $\eta_p^2 = 0.25$ ). We can conclude that for U-17 soccer players to achieve high intensity speeds, in GK+10x10+GK game formats it is necessary to prescribe training tasks in larger pitch sizes, greater than 3/4 of official 11-a-side dimensions.

**Keywords:** Soccer; Training load; Running; Speed; Pitch size.

# Effect of manipulating constraints on external load in medium-sided soccer games

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## ABSTRACT:

Understanding the manipulating effects of different task constraints is essential for soccer coaches to be able to plan the training with a perspective to concrete objectives. The aim of this study was to evaluate the effects of medium-sided soccer games (7 vs. 7), performed with and without goals, with and without definition of corridors, in external load. Ball possession 1 (BP1) was characterized by two ball touches by the players without goal objective and without corridors and ball possession 2 (BP2) by two ball touches by the players with goal objective and three corridors. Twenty-eight U-19 soccer players from a team in the national men's junior division participated in the study, which took place in a pitch size of 40 x 50 meters. The data were collected using WIMU devices, placed on the back of the trunk, using specific vests for this purpose and analysed using the descriptive and U-Mann Whitney statistics to compare the two games. We found statistically significant differences between BP1 ( $556.91 \pm 73.48$  m) and BP2 ( $604.01 \pm 114.16$  m) in the distance covered. There were no statistically significant differences between the two games at the level of high-speed running ( $>21\text{km/h}$ ), high accelerations ( $>3\text{m/s}^2$ ) and high decelerations ( $>-3\text{m/s}^2$ ). In conclusion, the introduction of small beacons and runners did not promote large effects at neuromuscular work and speed, although there was an increase in the distance covered.

**Keywords:** *Training load; External load; Soccer; Medium-sided games; Task.*

## The effect of plyometric training in U-17 amateur soccer players

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### ABSTRACT:

The propose of this study was to evaluate the effects of the application of a plyometric training program in U-17 amateur soccer players. 43 athletes were divided in two groups, control group (CG) which performed the regular soccer training sessions (18 soccer players), and intervention group (IG) which performed the regular soccer training sessions plus a specific plyometric training with 10 minutes duration to the performance of tree simple exercises in the end of two training sessions in the week (the weekly total training sessions were three), for 5 weeks. Both groups performed previously and after the intervention three tests, 30 m sprint (SP), standing long jump (SLJ) and Illinois change-of-direction test (ICODT). In the IG (age:  $16.6 \pm 0.5$ ; heigh:  $1.74 \pm 0.07$  m; weigh:  $67.2 \pm 7.4$  kg), no significant differences were observed, despite improvements in the tests (SP  $4.47 \pm 0.21$  vs.  $4.44 \pm 0.20$  seconds; SLJ  $1.81.56 \pm 11.51$  cm vs.  $1.84.52 \pm 12.25$  cm; ICODT  $8.66 \pm 0.55$  vs.  $8.63 \pm 0.54$  seconds). In the CG, no improvements were observed in the performance during the tests (age:  $16.7 \pm 0.6$ ; heigh:  $1.74 \pm 0.06$  m; weigh:  $64.2 \pm 4.6$  kg). In both groups, correlations were observed between performance in SP and ICODT. Results showed that intervention training programs promote the improvement of performance in physical capacity tests, although, the specificity and duration of the training program should be considered aiming the achievement of significant improvements, which likely will benefit players during the game and support injury prevention objective.

**Keywords:** Soccer; Plyometric Training; Young players; Change of direction; Long jump.

# Effects of an Eccentric Strengthening Exercise Program on Hamstrings Muscle Activity and Physical Performance in a Physically Active Population

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## ABSTRACT:

Injuries in the hamstrings are one of the most frequent in sports, often associated with jumping, running, and sprinting, namely with change of direction. This study aimed to evaluate the effects of a 10-week intervention protocol, consisting of slide leg and fitball flexion exercises, focusing on hamstring muscle activation and physical performance in athletes, specifically during the T-test. 13 participants were initially recruited, but only 9 considered in the study due to schedule incompatibility (age:  $21.85 \pm 2.88$  years; height:  $1.75 \pm 0.06$  m and body mass:  $68.92 \pm 8.47$  kg). Overall, the results showed an increase in muscle activation of all muscles in both limbs (6.77% maximal voluntary contraction - MVC - in the right biceps femoris - BF -, 6.81 %MVC in the right semitendinosus - ST - and 6.00 %MVC in the left BF), except when considering the left ST (- 8.32%MVC), however the differences were not statistically significant ( $p=0.972$ ,  $p=0.552$ ,  $p=0.861$  and  $p=0.100$ , respectively). The results of the physical performance pre and post intervention program evidenced an increase of 0.52 seconds in the performance of the test (11.22 vs 11.74 seconds) which reflects a decrease in physical performance, and this difference was statistically significant ( $p=0.004$ ). We can conclude that the implementation of a 10-week intervention protocol, consisting of the slide leg and fitball flexion exercises, is associated to positive results in hamstring muscle activation, although not significant, but not specifically during the T-test performance. The results support the notion that physical performance, in this particular the T-test, is associated to specificities (technical, biomechanical) that may require specific training, in addition to muscle activation.

**Keywords:** *Hamstrings; Muscle activation; Speed; Agility; Active population.*





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# ORAL COMUNICATIONS 2

- FOOD PRODUCTION AND TECHNOLOGY / FOOD BE-  
HAVIOR -

# Evaluation of soil quality through arthropod bioindicators

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## ABSTRACT:

Healthy soil is the foundation for agriculture and is an essential resource to ensure human needs. That said, the need to assess the aspects of its degradation, becomes a priority, in line with the sustainability politics outlined for the 21ST century, regarding the management and sustainability of food systems. Several studies have been conducted to quantify the impacts that cultural practices have on the ecosystems and have shown that the use of conservative practices, such as cover crops, can have positive effects on the soil fauna, in terms of abundance and functional relationships. An essential part of this fauna, the soil arthropods, being involved in processes such as the decomposition of organic matter, the nutrient cycle, and microflora regulation, have been used as indicators of soil quality. This study aimed to monitor soil Arthropoda biodiversity, in two intensive horticultural systems, where cover crops were installed. It was conducted in 2022, in two test fields, located in Carregueira (organic farming) and Chamusca (traditional farming), in the Santarém district, where a mixture of legumes and grasses was installed as cover crop, preceding a processing tomato crop. Two monitoring methods were used: (i) arthropod capture with pitfall traps and (ii) deep soil collection, applying the QBS-AR methodology. Both methods were repeated four times, one in the cover crop and three during the main crop. In the laboratory, the arthropods collected by the traps were quantified, separated by morphotypes, and taxonomically identified. The soil samples were placed in a Berlese-Tüllgren extractor for separation and posterior classification of the arthropods. In the Chamusca field, where the conclusion of the study was possible, the data showed that the plot where the cover crop was installed, presented a more significant number and diversity of arthropods as well as a higher soil quality index.

**Keywords:** *Cover crops; QBS-ar; pitfall traps; Soil arthropods.*



# Extracting protein methods from crickets (*acheta domesticus*) for food purposes

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## ABSTRACT:

There is a growing interest in the West for edible insects as a potential alternative source of protein which can present several advantages over current protein sources. Edible insects may offer a solution for obtaining a more sustainable and high nutritional protein source, with a balanced amino acid content, essential fatty acids, minerals, vitamins, and other bioactive compounds. Western consumers are open to the incorporation of insects in their diet, if they are used as ingredients in food formulation and if they remain invisible. Such resulted in the development of insect flours, mainly from cricket species and larvae. However, limitations exist regarding their functional properties, such as solubility, emulsification, foaming or gelling characteristics; this has prompted interest in the development of protein extracts powders as an effective way to enhance the functionality of insect flours. Protein extraction methods can be classified into conventional methods (e.g., extraction in alkaline medium) and advanced methods (e.g., enzymatic extraction, ultrasonic, microwave and pulsed electric field). Conventional methods are the most widely used but can present unsatisfactory yields as a result of protein degradation due to extraction time, type of solvents, pH, and temperature. Therefore, there is currently more focus in the investigation of advanced methods, using “greener” technologies, which may improve the protein extraction results and reduce the degradation. The aim of this work is to develop a method which can allow a satisfactory yield of protein extraction. For this, we intend to evaluate protein extraction methods using the insect *Acheta domesticus*. The methods will be compared and analyzed in relation to the literature already published on this subject. This project may contribute to food technologies to produce protein sources and bring benefits to the current context of food demand for a growing world population.

**Keywords:** *Protein extraction; Crickets (acheta domesticus); Edible insects Food source.*

# The influence of water deficit and soil mobilization on water stress in vineyard in mediterranean region

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## ABSTRACT:

Vineyard is one of the most important crops existing in Portugal, having a great economic impact in the country, being also cultivated in every region in Portugal. The growth of the wine sector has been boosted, to satisfy the growing demand of this product. In a context of climate change, understanding the way the various abiotic factors influence the productivity of vineyard is of utmost importance to increase the efficiency of the wine sector. Water stress is used nowadays as a strategy to obtain better quality in the production, being inevitable its increase because of the water scarcity challenge. In addition to water stress, turfgrass and soil mobilization strategies are equally important in crop water management. Thus, a field trial was carried out at Quinta do Quinto, Portugal, with the objective of evaluating the behavior of the vines of the Fernão Pires variety under different irrigation and soil mobilization regimes. The experimental design contemplated 4 modalities: a) well-watered ETO=100% with natural grass; b) well-watered ETO=100% with tilled soil; c) water deficit ETO=50% with natural grass; and d) water deficit ETO=50% with tilled soil. The monitoring was realized by measuring the leaf water potential using a Scholander chamber. The results revealed significant differences between the modalities, with both modalities (a) and (c) showing lower water potential values, in module, compared to the tilled soil modalities, suggesting less water stress for the plants. With regard to the grape quality, it was also found that in modalities a) and c), parameters such as sugar and polyphenols are higher, which may lead to better quality wines. These results highlighted the importance of water management combining the management of the soil to increase the sustainability of the wine sector.

**Keywords:** *Climate change; Vineyard; Abiotic factors; Leaf water potential.*

# Morphological characteristics for the recognition of *Drosophila suzukii* (matsumura)

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## ABSTRACT:

*Drosophila suzukii* (Matsumura) is one of 1500 species of the genus *Drosophila*, family Drosophilidae, commonly known as vinegar flies. *D. suzukii* host list is very extensive with a preference for fruits with a not very resistant tegument, such as small fruits (strawberry, raspberry, blackberry, blueberry), in which it causes considerable damage. Therefore, spotted-wing drosophila recognition is very important. However, to identify this species the observer has to acquire some practice. One of the biggest challenges is recognizing the spotted-wing drosophila among the many other small flies, including other trap-caught *Drosophila* species.

Thus, in order to facilitate its identification and help farmers and field technicians to recognize it, to better control it and to apply the appropriate protection methods, a quick key to recognize *D. suzukii* was developed and will be presented. The specimens analyzed and photographed for the identification key were captured in traps within the scope of the GO FruitFlyProtect project, from 2018 to 2022. Two biological observation sites were monitored, Alentejo SW (raspberry) and Santarém (table grape). *D. suzukii* presents summer and winter forms but only the first one was observed during the project. Nevertheless, morphological characteristics of *D. suzukii* winter form were included in the identification key. Some morphological characteristics allow the identification of *D. suzukii*, the main ones being: presence of a single spot on the terminal part of the wing and two sexual combs oriented perpendicular to the leg direction, on the front legs, in the males; serrated ovipositors with two rows of teeth that are longer than other species of vinegar flies, in the females.

**Keywords:** *Drosophila suzukii*; Berries; Identification key; Morphological characteristics; Spotted wing drosophila.

# Environmental components associated with human behavior by local political actors: the state of (un)grace

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## ABSTRACT:

We live in a time where the information available on a given subject seems to be easily found, so that many consider themselves sufficiently informed after a short consultation on something. However, due to the nature and specificity of some topics, this moment can result in a limited, insufficient, and extemporaneous approach, even for making decisions. One of these themes is environment-related issues, in the components associated with human behavior, particularly waste management, especially by local political actors. Some authors argue that it is necessary to take clear actions, that is, to become better informed, to consume differently, and to contribute more to waste recovery. They state that many citizens consider it normal to make efforts to inform themselves about movies, politics, sports, travel in and out of the country, but few do so regarding waste, which concerns everyone. Having as legal support the legal regime of local authorities, which grants competencies in the area of environment and health, to those who exercise “politics”, the present poster, through a questionnaire survey, intends to gauge the sensitivity and knowledge of the component described, applied to members of municipal and parish assemblies of Anadia municipality, Aveiro district. More than arriving at an assessment, it is important to perceive the level of information acquired, since these are the decision-makers of the management, support, and financing model for waste management in the municipality. The concluding notes mirror the weakness of the current state of the environment.

**Keywords:** *Environmental components; Local politics; Information; Decisions.*

# Principles of legal basis applied to municipal solid wastes: a holistic and multiple view for non-legal people

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## ABSTRACT:

The issue surrounding climate change, a subject on the agenda, is very focused on the cause-effect relationships of human behavior, more relevant in the impacts of natural environment components. The recent reports of the International Panel for Climate Change (IPCC), however edited, are the mirror of this approach. However, it is reductive when one realizes that in many countries environmental standards are debated and produced, which since the middle of the last century have rarely been perceived by citizens, whether in Europe or in Portugal. These norms are based on Principles, some of them emanating from European Treaties, committing the member countries in their application and transposition, showing that this meaning and knowledge are “welcome” when they fall short of “affecting” society, raising awareness and leading to changes in said behaviors. The present exposition intends to present these principles: the principle of guaranteeing a high level of protection, the precautionary principle, the prevention principle, the principle of correction at source, the polluter pays principle and the integration of environmental protection requirements into other community policies. A multiple interpretation is urgent (environmental and legal, for citizens), with the general objective of promoting a more holistic knowledge of them, realizing the difficulty of their senses and the need for an easier approach of acceptance by all, in a very technical and specialized bibliographical research (pronounced jurisprudence). This approach demonstrates that the result of turning the reading, interpretation, application and evaluation of the principles into a more specific vision that generates consensus for everyone, society in general and each citizen in particular, is possible.

**Keywords:** *Environmental legal interpretation; Environmental norms and principles.*

# Indicators for quality assessment of municipal solid waste management services: a critical analysis of the theory proposed to the reality lived

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## ABSTRACT:

With Portugal's entry into the current European Union (EU), in 1986, major structural and conjunctural reforms in the public domain were incremented, from which we can highlight the services related to general basic sanitation, which include the public supply of water to the population, urban wastewater sanitation, and management of urban solid waste. After the implementation of some of them at the end of the 19th century, beginning of the 20th century, and a great evolution between the years 1944 and 1990, today, these services reach almost the whole territory, being organized in multi-municipal, inter-municipal and municipal systems (in a partnership between the Government and the municipalities) and a publicly owned holding company. At the same time, by imposition and transposition of European legislation, it was necessary to create a regulatory institution whose general mission is the regulation and supervision of the sectors described, the Regulatory Authority of Water and Waste Services (ER-SAR). The instruments to carry out this supervision are defined in the system of service quality assessment indicators for each of the sectors concerned. This presentation intends to expose the situation of some of these indicators, in a real context, questioning their applicability and subsequent evaluation, since there are local territorial and social constraints that question their existence, namely in rural and low-density territories, making them fragile. Many times, the reality and the balance found by the population in these systems may find unreasonable grounds that are not accepted by those who evaluate, leading to conflicts, even institutional ones.

**Keywords:** *Services; Indicators; Conditioning; Evaluation.*







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# ORAL COMUNICATIONS 2

- PHYSICAL ACTIVITY AND HEALTHY LIFESTYLES -

# Spiritual well-being of Portuguese elderly people resident in home context

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## ABSTRACT:

Quality of life is defined by the WHO as “individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”. Among the constructs that allow assessing QOL, there is the dimension of spirituality / religion / personal belief. As aging is a stage of great vulnerability, it is important to assess the spirituality dimension in this population. Analyze the spiritual well-being of elderly people and its relationship with sociodemographic variables and self-perception of health status. Methodological study of non-experimental nature, cross-sectional, quantitative, descriptive, and correlational, with a favorable opinion from the Ethics Committee (Proc.086/CES/INV/2018). The sample consisted of 400 elderly people, living in a home context, aged between 65 and 97 years. The Spiritual Assessment Scale (SAS) is applied, which includes 3 domains: Personal Faith, Religious Practices and Spiritual Contentment. Gender, age, educational level, and self-perception of health status are shown to be associated with significant differences in spiritual well-being (global effect of gender 5.8%; education 4.2%; self-perception of health status; whose global effect occurs due to the existence of differences in terms of Personal Faith 4.3% and Religious practices 2.9%), with superior results in females, in the more elderly, in those with lower levels of education and who report being unable to care for themselves. Elderly people who are unable to take care of themselves have higher average scores for Personal Faith and Religious Practices compared to healthy elderly people and elderly people who are able to take care of themselves despite the illness. Religious practices and personal faith provide the elderly a way to deal with the challenges of aging and/or illness situations, therefore, in health care contexts, spiritual care must be an integral part of holistic care, with the potential to improve QOL.

**Keywords:** *Elderly; Quality of life; Spirituality; Spiritual well-being.*

# Effects of exercise programs on phase angle in older adults: a systematic review and meta-analysis

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## ABSTRACT:

The purpose of this study was to review the evidence to determine the effects of exercise programs on phase angle (PhA) in older people. A systematic review was undertaken in multiple electronic databases in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses statement guidelines for the purposes of selecting randomized controlled trials that measured the effects of the exercise programs on PhA in older adults on 31 March 2022. We carried out a random-effect meta-analysis for the effects of exercise programs on PhA. Additionally, we analyzed the differences between subgroups in terms of weekly frequency, number of sets and repetitions, and duration of interventions. Studies were methodological assessed through the PEDro scale where one had excellent, ten had good, and three had poor methodological quality. For the purposes of the study, fourteen studies met the criteria for inclusion. However, four studies did not have enough information to be included in the quantitative analysis. The remaining ten articles revealed moderate effects on PhA in favor of intervention groups ( $p=0.009$ ,  $SMD=0.72$  [0.46–0.99],  $I^2=54\%$ ). The meta-analysis also showed that interventions lasting twelve weeks are more successful in generating positive effects on PhA as opposed to eight weeks ( $SMD's=0.79$  vs. 0.64, respectively). These results indicate that resistance training (RT) is an effective and safe to improve PhA in the older people, especially through RT programs lasting from eight to twelve weeks. A novel finding of this study was that RT is the most used type of exercise by authors when assessing the PhA in older adults.

**Keywords:** *Older people; Bioimpedance; Resistance training; Training.*

# Phase angle is related with physical function in older adults: a cross-sectional study

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## ABSTRACT:

This study aimed to verify a relationship between phase angle (PhA) with physical function in older adults. We also intend to analyze the ability of PhA to predict physical function after adjusting for potential confounders. This cross-sectional study included fifty-six physically independent older adults (age,  $70.57 \pm 3.79$  years; BMI,  $28.09 \pm 4.37$  kg/m<sup>2</sup>). Bioelectrical impedance analysis was used to measure PhA at 50 KHz. Additionally, physical function was assessed through four functional fitness tests, 30 sec chair-stand; timed-up & go (TUG test; 6 min walking test and ball throw test). The University of Évora Ethics Committee approved this study (approval no. 22030). It was found moderate correlations between PhA and ball throw test and 6 min walking test ( $p=0.005$ ;  $r=0.375$  and  $p=0.003$ ;  $r=0.396$ , respectively) and a small correlation between PhA and 30 sec chair-stand test ( $p=0.035$ ;  $r=0.285$ ). No correlation was found between PhA and TUG test. In addition, after adjusting for potential confounders the linear regression analysis demonstrated that PhA was a significant predictor of some functional fitness tests: ball throw test ( $\beta=38.114$ ;  $p<0.01$ ;  $R^2=0.630$ ) and 6 min walking test ( $\beta=575.212$ ;  $p=0.001$ ;  $R^2=0.257$ ). The correlation between PhA and ball throw test may represent that a better cellular and membrane integrity can facilitate the ability to recruit motor units and thus, to improve the capacity muscle activation and the force production. Lastly, we can conclude that the PhA is a marker of physical function in independent older adults.

**Keywords:** *Older adults; Bioimpedance; Physical function; Functional fitness tests.*

## Research in the teaching-learning process - quality of life of the elderly person

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### ABSTRACT:

There is currently evidence of the need for complementary relationship between teaching and research. This interactive and innovative relationship is essential for the transfer of scientific knowledge, produced by students and professors in academic environment, to produce results and benefit the quality of life of those who will benefit from them. In Curricular Unit Research III, of the Nursing Course, students, supervised by professors, develop Scoping Review (Joanna Briggs Institute), with the themes to be studied being integrated into four domains (Birth Pregnancy and Neonatal period; Post-neonatal and Youth; Adults in active life; Elderly person - healthy aging) constituents of the scientific area Individual and Community Health of the Life Quality Research Center, offering as contributions, emerging scientific evidence in their scope. This highlights the importance of the applicability of the results of scientific evidence, produced academically, within the scope of the elderly person – healthy aging domain. Share the experience regarding the production of results of scientific evidence in the scope the healthy aging domain, about the quality of life in the elderly, in an integration, teaching/research. Development by students of Scoping Review, about emerging themes related to quality of life of the elderly, under the supervision of teachers. The themes in the 2021/2022 school year were: Quality of life of the elderly and its relationship with the use of technology, with social isolation and the importance of physical activity. The evidence from the Scoping Review carried out constitutes important working tools in the development of ongoing research projects in the field of the elderly – healthy aging, highlighting the complementarity achieved between teaching and research. From evidence, we highlight the importance of technological/robotic solutions, as promoters of independence and quality of life for the elderly.

**Keywords:** *Elderly person; Quality of life; Teaching learning.*

# Quality of life of higher education fitness students in Portugal (ESDRM – IPSantarém)

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## ABSTRACT:

Quality of life (QoL) has been researched in several areas. Among health sciences high-education students, results reveal moderate levels of QoL. The purpose of this study is to characterize the QoL of higher education fitness students, compare it between groups (gender and school year), and correlated it with age. A total of 133 students of Sports, Fitness and Health bachelor, from the Sports Science School of Rio Maior, in Portugal, answered an online survey of the Portuguese version of the World Health Organization WHOQOL-Bref Quality of Life Assessment. Mean and standard deviation was used in descriptive analysis, and, after test normality, T-test and ANOVA were used to compare groups (with effect sizes), and Pearson for correlations. The sample has  $19.64 \pm 1.74$  years old, being 53.4% female and 46.6% male, 63.2% from 1st year, 24.8% from 2nd and 12.0% from 3rd. Results suggest that the students have satisfactory to good levels of QoL, considering the mean and the higher standard deviation. The lower score was verified in the Psychological Domain ( $66.26 \pm 14.65$ ), and the highest in the Physical ( $74.68 \pm 12.38$ ). There were no significant differences between bachelor year, but female students have significant lower QoL than males in the Overall QoL and General Health (OQoLGH) and Environment Domain, both with moderate effect size. A very low negative significant association was established between age and OQoLGH, suggesting that as students get older, the QoL decreases. This sample reveals higher levels of QoL than students in other areas of health sciences. Studies reveal that students' QoL can be affected by levels of stress, anxiety, depression, and family monthly income. Further investigation of the risk factors for QoL among students is needed to help define measures that improve students' well-being.

**Keywords:** *Fitness students; Higher education; Quality of Life; WHOQOL-Bref.*

# Perception of risk factors and injuries incidence in via ferrata activities: a systematic review

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## ABSTRACT:

The via ferrata is a way of climbing with the purpose of ascending or crossing safely using artificial equipment fixed to the rocks permanently, arranged almost continuously along the path. The main objective of this review was to synthesize relevant studies on via ferrata activities to identify and examine the risk factors and the incidence of accidents, plus injuries and prevention. The methodological design used in the review was according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method. A systematic search was performed in scientific databases like MEDLINE (PubMed), Science Direct and Web of Science. Relevant studies were identified up to March 31, 2022, with the following keywords: “via ferrata” and “risk factors” and “injury”. The inclusion criteria applied were articles published between 2010 and 2022; be written in English, Spanish and/or German; published in a scientific journal; and one of the keywords in the title or abstract. Eligible articles were peer-reviewed, based on primary research using original data, considering inclusion and exclusion criteria for eligibility. The most relevant results were extracted, evaluated for methodological quality, and summarized. The search resulted in 5 articles, that were divided into topics: fall absorption as risk factor for via ferrata sets; knowledge of risk in relation to performance and risk behaviors; occurrence of accidents and/or medical emergencies, with and without the occurrence of injuries. It was identified that injuries were reported due to falls and fatigue, showing the importance of risk perception and the use of adequate equipment, especially in younger practitioners. The via ferrata activities are on the rise and, consequently, it becomes evident the need to investigate this new way of climbing, however, it remains a theme difficult to address, since the records of this recreational and autonomous activity, are not yet properly controlled by an entity.

**Keywords:** *Injuries; Risk factors; Systematic review; via ferrata.*





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# ORAL COMUNICCTIONS 2

- ORGANIZATIONAL DYNAMICS -

# Measuring perceived sustainability in fitness clubs industry: development a measurement scale - perceived sustainability fitness clubs scale (PSFCS)

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## ABSTRACT:

Sustainability is one of the most important issues worldwide. Sport is not immune to the contemporary responsibilities of contributing to sustainable development (SD): helping balanced economic development, contributing to social equity, and preserving natural resources. The present study aims to develop a scale to measure the perception of customers regarding fitness clubs' sustainability practices, based on three dimensions of the SD paradigm: economic (ECO), social (SOC) and environmental (ENV). The authors follow Churchill's 8-step methodological proposal to design a new multi-item scale that includes items previously used in marketing literature regarding perceived sustainability. The original scales were translated to Portuguese following Brislin's methodological procedures and committee approach. This was a five-step process: (1) first translation by a native specialist in English-Portuguese; (2) this initial Portuguese version was reviewed by a panel of four scientific experts; (3) a second panel of four other specialists joined the first panel to assess the second Portuguese version of the scale and reach consensual agreement that all items were properly translated; the expert's assessment resulted in a list of 29 items (7 ECO, 12 SOC, 10 ENV); the refined list was used to develop a scale for pilot testing questionnaire; (4) a pilot sample of 45 fitness club clients and sports students (62% women; age:  $M=42.23$ ;  $SD=15.02$ ) was made; and (5) two Portuguese teachers reviewed the final version to correct syntax, spelling and grammar. The results obtained made it possible to translate and adapt the scale for the next step. In the following stage, we intend to analyze psychometric properties of the scale which is composed of 29 items. In summary, the present findings provide subsidies for the development of the Perceived Sustainability Fitness Clubs Scale (PSFCS), whose following steps will validate the scale.

**Keywords:** Development scale; Fitness; Perceived sustainability; Sport.

# Quality of working life and turnover intentions: a case study applied to the district hospital of Santarém

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## ABSTRACT:

This research aims to study how the quality of work life impacts health professionals' turnover intentions at the District Hospital of Santarém (HDS). Additionally, it also aims to investigate whether this relationship is moderated by variables such as gender, type of schedule, professional activity, and work experience with Covid19 patients. Through a quantitative and correlational approach, data obtained from 318 health professionals from the HDS (82% female; 61% shift work) were analysed. The Quality of Working Life Scale-2 (WRQoL-2) and the Anticipated Turnover Scale (ATS) were used for this purpose. The WRQoL-2 scale consists of 32 closed-response items that assess seven dimensions (job control, organizational commitment, general well-being, home-work balance, career satisfaction, job stress, and working conditions). The Anticipated Turnover Scale (ATS) is composed of 12 items. The effect of gender, type of schedule, professional activity, and work experience with Covid19 was controlled. The analysis of the results suggests that: (a) quality of work-life dimensions negatively influence the turnover intentions of health professionals in HDS, (b) the moderating variables (gender, shifts, professional activity, and work experience with Covid19 patients) have no moderating effect on the relationship between quality of work-life and workers' turnover intentions.

**Keywords:** *Quality of work life; Turnover; Survey; Empirical study; Health workers.*

# Quality of working life and burnout syndrome: a case study applied to technicians in radiology

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## ABSTRACT:

This research aims to investigate (in the context of radiology technicians): (a) the relationship between quality of working life (QoWL) and the different dimensions of burnout syndrome (emotional exhaustion, depersonalization, and personal accomplishment), (b) the difference between men and women regarding the levels of QoWL and burnout; (c) the difference between professionals working up to 35 hours per week versus more than 35 hours in the levels of QoWL and burnout. The study used the Work-Related Quality of Life Scale-2 (WRQoL-2) by and the Maslach Burnout Inventory - Human Services Survey (MBI-HSS). We obtained a sample of 140 therapeutic technicians in radiology, mostly female (n:103; 73.6%). The participants' ages ranged between 24 and 67 years, being mostly married or living in a consensual union (n:97; 69.3%). Regarding academic qualifications, the majority (n:112; 80%) of the participants have a bachelor's degree. The results suggest: (a) the higher the QoWL, the lower the emotional exhaustion, the lower the depersonalization and the higher the personal fulfillment; (b) the QoWL dimensions that most influence the burnout dimensions (to a different extent and varying according to the dimension) are well-being, work-life balance, job satisfaction, stress, working conditions; (c) well-being levels are higher for men, working conditions are perceived as better by men, overall QoWL is higher for men, emotional exhaustion is higher for women; and (d) well-being and work-life balance are higher for those working 35 hours or less, stress and emotional exhaustion are higher for those working more than 35 hours.

**Keywords:** *Quality of working life; Burnout syndrome; Survey; Technicians in radiology.*

# Quality of life of patients undergoing hemodialysis treatment: a case study

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## ABSTRACT:

This study aims to analyze the quality of life of patients undergoing treatment for hemodialysis. It is a quantitative, descriptive, cross-sectional, and non-experimental study. The Kidney Disease and Quality of Life-Short Form (KDQOL-SF) was used as a measurement instrument. The sample consisted of 87 chronic kidney patients undergoing treatment hemodialysis patients, mostly male, with an average age of 63,27 years old. More than half of the participants were married and most lived with their family. A large part completed the first cycle and 78,2% were retired / retired. The results revealed that there is a relationship between the quality of life of patients undergoing hemodialysis treatment and age, gender, level of education, patient's professional situation, time of hemodialysis treatment and the COVID-19 pandemic. There is no relationship between the quality of life of patients undergoing hemodialysis treatment and the patient's family situation/support.

**Keywords:** *Quality of life; Chronic kidney failure; Hemodialysis; COVID-19.*

# How sports results affect the cryptocurrencies valuation: a case study of the Porto Football Club fan token

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## ABSTRACT:

FTOs (Fan Tokens) are digital assets created to be distributed with the promise of being worth something in the future, representing some market value. Research has been carried out in order to understand the volatility of these assets, since it is not possible to guarantee if a fan token really gains financial value. The hypothesis of this study is that the sporting results (positive or negative) of a team can affect the price of a fan token in a very short time. Predict the fan token value (price) of the Porto Football Club for the following day, considering the sporting result. Machine learning algorithms can be used as a prediction tool, allowing the development of an automated process that extracts patterns from data. The decision trees have advantage to support the extraction of actionable information. In this research the daily closing prices of the Porto Fan Token were downloaded from yahoo finance (yfinance library). The indicators were calculated using talib library, and the data correspond to the time period between 16-11-2021 and 09-11-2022, 360 observations, match game results (3 for win, 0 defeat and 1 draw) was added. The decision tree allowed us to identify the following patterns: if the FTOs volume is less than 545000 we have a success rate predicting if the price will increase in the next day of 80%; if the volume is greater or equal to 545000 and volume vwap less than 3.4 the success rate can explain 63.6% of fan token price increase next day. Nonetheless, our results were unable to identify a pattern where the match result affected the price of the fan token.

**Keywords:** *Fan token; Football; Machine learning; Decision trees; Sport results.*







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# ORAL COMUNICCTIONS 2

- EDUCATION AND TRAINING -

# The 2D:4D as a potential predictor of training load and physical fitness variations of youth football players

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## ABSTRACT:

This study aimed to examine if training load and physical fitness variations are explainable by a putative biomarker of prenatal androgen exposure, the 2D:4D. A prospective cohort study design was used. Twenty-seven football players of an Under-15 team were observed across 38 weeks. All players participated in two moments of physical fitness assessments (at the beginning and at the end of the season). During the 38 weeks, the training load was quantified by the session-rate of perceived exertion. Then, the weekly training load (wTL), mean training load (mTL), 5-day average (5d-AVG), training monotony (TM) and training strain (TS) were calculated. Physical fitness and training load measures had significant differences from the beginning to the end of the season. The 2-digit (2D) and 4-digit (4D) of left and right hands presented negative moderate correlations with change of direction (COD) ( $r = -0.39$  to  $-0.45$  |  $p = 0.05$  to  $0.02$ ). The right hand 2D:4D presented positive moderate-to-large correlations with training load measures ( $r = 0.40$  to  $.56$  |  $p = 0.04$  to  $0.001$ ). The 2D:4D measures explained small proportions of the overall training load and physical fitness variations ( $r^2 = 0.16$  to  $0.38$ ) in the model used. Although the use of 2D:4D may be a potential predictor of different training load measures, other contextual variables that were not included in the model may influence a significant proportion of training load and physical fitness variations.

**Keywords:** *Estimate; Performance; Monitoring; Juvenile.*

# Police training for sports hall events

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## ABSTRACT:

Ensuring the security of a sporting event is the most important issue for Police. It is known that the risk is a combination of possible consequences in face of uncertainty. The risk involves the sports halls, the sports fans, the infrastructure, and the knowledge of the Police. The present study aims to address police training by evaluating what's is the actual context, how is the intervention made, and what is the added value of an effective training plan in the security of the sports hall events. For data collection, we interviewed the police with specialized knowledge of the topic. The interview guide was composed of 12 questions that allowed the determination of three dimensions. The emphasis will be Police training for sports hall events. The experts are from PSP, COMETLIS and COMETPOR, and an organization outside it. The results made it possible to determine the influence of training in the operationalization of a sports event in a hall, and the impact of police turnover. The common ground of the interviewees is that training is the core of the action engagement. The inexistence of compulsory training in major areas of sports events – pre-event, during the event and post-event – conducts to a lack of standardized procedures at a national level. Alongside police agents, police commanders should also have specific training. These will allow them to be more effective, efficient, and confident in decision-making. Also, Police rotation hinders the definition of routines. Nonetheless, this is circumvented by the experience sharing and the practice across the years. Reflections about the short training leads to topics concerning tactical, legal, filed position, negotiation and mediation, the taxonomy of sports fans, and risk assessment. Combining these elements will sustain a better path to building a training agenda.

**Keywords:** *Police; Risk; Sports events; Sports hall; Training.*

# Characterization of external load and well-being in an amateur soccer team

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## ABSTRACT:

The aim of this study is to quantify the External Load (EL) and well-being data of an amateur soccer team, during two microcycles of the 2021/22 season, and to compare starters and non-starters in both training and competition. Twenty-seven outfield soccer players with a mean  $\pm$  SD, age, height and body mass of  $25.59 \pm 3.57$  years,  $176.85 \pm 6.74$  cm and  $76.26 \pm 11.09$  kg, respectively, participated in this study. A global positioning system was used to collect EL and the following variables were analyzed: total distance covered, distance covered in five speed zones, number of accelerations/decelerations in five intensity zones, maximum speed, and player load. To assess well-being, the Hooper Index (HI) was used. Data from 2 weeks were analyzed through match-day minus approach (MD-5, -3, -2, MD) and two groups of athletes were formed according to their match status (starters and non-starters) in the two weeks analyzed. During the MD, Starters showed higher EL values in almost all variables ( $p < 0.05$ ) with the exception of maximum speed and distance cover above 25.2 km/h. They also showed higher muscle soreness during MD-5. Non-Starters presented higher stress rates during the entire microcycle ( $p < 0.05$ ). Coaches and the staff must create compensatory strategies for non-starters. And that they should also use simple application tools, such as the HI, as they achieve a clearer perception of the individual and general state of the athletes.

**Keywords:** *External workload; Hooper index; Status; Match-day; Non-professional.*

# Professional football players perception about the training process

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## ABSTRACT:

The purpose of this study was to analyze the ex-professional football players perception about some training process aspects, namely the skills that the head coach must have, preparatory period organization, exercise operationalization, tactical schemes training, observation and analysis, importance of the team captain and physical training. In view of the defined objectives for the investigation, we opted for the qualitative methodology since it is a study focused on the interpretative paradigm. This paradigm aims to understand and explain reality as it is evident, without intervening on the same. The sample focused on three professional football players, aged between 23 and 25 years old, playing in the Portuguese 2nd league during the 22/23 season. The semi-structured interview was used, as a data collection tool, for the purpose of guiding the conversation with players. Subsequently, a content analysis was performed aiming data collection. We were able to conclude that the head coach should be allocated a wide range of tasks, especially in terms of human resources management, as well as the supervision of all the work to be carried out. In the pre-season it is essential to work on the physiological, tactical and group cohesion aspects. The main ingredient of the exercises, in the sense of pleasing the players, is the presence of the ball. The team captain is associated to a leading role in the team's success and coach leadership, consequently, should be able to generate consensus and approaches that prevent conflicts.

**Keywords:** *Qualitative Methodologies; Football; Training process.*

# Teaching physical education through the fun activities in sport method

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## ABSTRACT:

An analysis of the current world society context reveals several problems that should deserve particular attention from all sectors, namely: 1) Physical inactivity and consequently childhood obesity; 2) Children with low levels of motor development and autonomy; 3) Problems related to climate change and mismanagement of materials such as paper, plastic and glass (Agenda 2030/ODS); 4) School-based learning based on disciplined learning, instead of interdisciplinary learning and; 5) Societies with multicultural conflicts and reduced family leisure time between parents, children and grandparents. Consequently, the “Fun Activities in Sport” method is assumed as a pedagogical instrument in the teaching of Physical Education with children and young people. This method is based on 6 pillars. Classes primarily aimed at pre-school and 1st cycle children in primary education (usually 6 years old children), because at this stage the sensitive phases for motor development are found, but also because it is known that physically active children are more likely to become active adults. Science also points out that from the age of 12 a third of young people leave sports. This is first pillar. Classes in which motor skills are developed in conjunction with the learning of other areas such as Mathematics, Portuguese Language and Environmental Study. This is second pillar. The third pillar includes use of reused materials (plastic bottles, yogurt cups), to draw attention to the problem of recycling and waste management; The fourth pillar includes the use of music that potentiates a truly fun atmosphere (Edworthy & Waring, 2006). The fifth pillar developing activities addressing topics such as hunger, war, disability and gender issues (Agenda 2030/ODS); And finally, the sixth pillar involvement of the family in the activities, especially in festive days such as the father and mother days and world children’s day.

**Keywords:** *Physical education; Childhood; Interdisciplinarity; Physical activity.*







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# ORAL COMUNICATIONS 3

- PHYSICAL ACTIVITY AND HEALTHY LIFESTYLES -

# Advertising campaigns as an agent of social and cultural change: an approach to the potential of an advertising video as an instrument to promote physical activity and quality of life – the ASICS case study

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## ABSTRACT:

The issues of health promotion and quality of life are deeply linked to the promotion of physical activity, which currently in a global digital environment, are influenced by the power that the image and message bear, supported by theories of behavior. Considering the potential of an advertising campaign video, we recognize its contribution as an instrument to intensify a message, and to motivate the public to practice physical activity. On the other hand, from a consumer perspective, it can still be decisive in the act of raising awareness about the purchase of a certain product, consequently influencing the practice of physical activity. The advertising video, by acquiring the tone of an integrated instrument of a communication strategy, can establish a cause-effect relationship and contribute to a more active society and with quality health, as foreseen in the fourth Sustainable Development Goal (SDGs). We consider Asics and its video campaigns as an agent of social and cultural change, since the brand has developed studies on movement and the positive relationship with physical and mental health, also integrating communication actions that promote in society a more active culture. For this, we deepen the theoretical contributions to image studies, and align the significant contributions of communication for companies that use these SDGs as a global framework, as they contribute to innovation and to a more sustainable and inclusive future. A review that triggered a pilot project, allowing the identification of consumer behavior as a potential audience for a product. The final considerations are mainly at the level of the implications of viewing a video, regarding the social and cultural changes necessary for health promotion, and how they fit in as an impact of communication action.

**Keywords:** *Publicity Campaign; Video; Physical Activity; Social Change; Asics.*

# Effects of a 24-week exercise program on quality of life in individuals with intellectual and developmental disabilities

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## ABSTRACT:

This work aims to investigate the effects of two physical exercise programs on quality of life of adults with Intellectual and Developmental Disabilities (IDD), through an experimental study. Twenty-one adults with IDD (Mean age=43.04; Standard Deviation=11.18 years) assigned an indoor training group (N=7; 24-weeks gym intervention with machines), an outdoor training group (N=7; 24-weeks outdoor intervention with low-cost materials) or a control group (N=7). We measured the perception of quality of life through Personal Outcomes Scale in Portuguese version (Simões et al., 2016). The Shapiro-Wilk ( $n < 50$ ) and Levene tests were used to verify data normality and homoscedasticity. Kruskal–Wallis test was performed to verify if there were differences between groups. For comparison and identification of possible differences within each group, Wilcoxon signed-rank test was used. The significance level to reject the null hypothesis was set at 5%. After 24-weeks of physical exercise intervention, the domain Physical Well-being in both groups improved, although non-significantly. There were no changes for the control group. The outdoor group training significantly improved the domain Physical Well-being, when compared to the control group ( $p=0.017$ ;  $\eta^2=0.545$ ). There were no significant differences in the other domains in the three groups. An outdoor and low-cost intervention seems to be effective in improving Physical Well-being, and consequent quality of life.

**Keywords:** *Cardiorespiratory training; Indoor training; Outdoor training; Resistance training; Well-being.*

# Physical exercise and cognition in elderly people

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## ABSTRACT:

Physical exercise training programs promote beneficial effects on health and quality of life (Leitão et al., 2022). This study aimed to investigate the effects of a physical exercise program on cognition in institutionalized elderly. The sample consisted of 26 institutionalized elderlies, randomized into two groups: the intervention group (n=12; 84.75±5.07 years and BMI 29.09±3.76 kg/m<sup>2</sup>), undertook a physical exercise program for 16 weeks with a frequency of 3 low volume weekly sessions (25/35 minutes per session) and the control group (n=14; 81.50±7.90 years and BMI 29.69±6.38 kg/m<sup>2</sup>) did not perform any type of physical exercise. Functional Capacity was assessed using the Senior Fitness Test battery, and we used the Mini Mental State Examination test to assess cognitive function. The intervention group improved all functional capacities, especially strength of the lower and upper limbs, flexibility, agility, dynamic balance/gait and aerobic capacity, as well as cognitive functions (p<0.05). The control group significantly declined all measures (p<0.05). These results reinforce the idea that the implementation of physical exercise based on strength is an aerobic component. In addition, they have an impact on cognitive function and these are fundamental to maintaining and improving the quality of life and independence of the elderly.

**Keywords:** *Physical exercise; Functional capacity; Mini-mental state exam; Aging.*

## Effects of active breaks intervention program on administrative workers

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### ABSTRACT:

Disabilities and occupational diseases have become priority issues for many organizations. At the end of 2020, the WHO launched new publications on physical activity and sedentary behavior. Postural pauses can be effective with reduced pain and discomfort. However, even knowing the importance of a physical regular practice, the general population has been acquiring increasingly sedentary work habits. In this way, it is necessary to develop strategies to promote the increase of the worker's activity. This is what leads to the present work, which has as main goal to analyze the effects of the prevention of sedentary lifestyle through physical activity - active breaks -, during working hours. 20 workers aged 36 to 61 (30% male and 70% female) participated. IPAQ-long version, QNM, WHOQOL-Bref, Mobility and distances covered questionnaires were applied. Biological assessment (weight, height, hand strength) with bioimpedance scale, stadiometer, and TAKEI 5401 Digital dynamometer. The active breaks were provided for 8 weeks, three per week. Before the intervention, the results show low levels of physical activity. After the intervention, the results showed slightly differences, although the statistical differences between the pre and post intervention were poorly significant.

**Keywords:** *Health Promotion; Active Breaks; Physical activity; Quality of life.*

# Sport and physical activity in health policy

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## ABSTRACT:

**Objectives:** In recent decades, sport and physical activity have been recognized as one of the most important issues for the quality of life and well-being of individuals. The World Health Organization has been setting global goals such as reducing sedentary lifestyle by 10% by 2025. The objectives of this project were to identify the existence of policy guidelines for the promotion of physical activity and sport among citizens at inter-national, European, and national levels. **Methods:** The methodology was documentary research. The search terms are “physical activity” and “health policy”. The sources used were the websites of the organizations object of the study. The search was conducted between 20 October 2022 and 20 November 2022. We have analyzed the four most updated documents (2008-2020) related to the world level - WHO, European level - European Union, and Portuguese level - Government of Portugal and Direção Geral de Saúde. **Findings:** The results show that there are policy guidelines for the promotion of physical activity and sport in the reference documents of the organizations consulted: WHO, European Commission, Government of Portugal and Direção Geral de Saúde. The guidelines found show convergence in intentions, for example 1) at WHO level, the Global Action Plan for Physical Activity 2018-2030, 2) at EU level, the Recommended Policy Actions in Support of Health-Enhancing Physical Activity, and 3) Portugal, the Government proposes to raise the levels of physical activity in general population, promoting well-being and health indices for all age groups. Portugal has even set the goal of placing the country in the group of fifteen European states with physically active citizens in the next decade. This is done through the National Strategy for the Promotion of Physical Activity, Health, and Well-being by the Direção Geral de Saúde.

**Keywords:** *European Union; Physical Activity; Policies; Portugal; WHO.*







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# ORAL COMUNICATIONS 3

- *INDIVIDUAL AND COMMUNITY HEALTH* -

# Yoga breathing techniques' heart rate variability: characterization project for health non-clinical intervention and personal use

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## ABSTRACT:

Heart rate variability (HRV) is the change in time intervals between heart beats and a marker of autonomic nervous system to adapt to intrinsic and extrinsic psychological and physiological demands. Slow breathing techniques enhance parasympathetic activity, with increasing of HRV, affording emotional control and psychological well-being. Breathing as meditative practice in Yoga and advanced practice called Pranayama, breath control and expansion with retention, affords conscious regulation of respiration frequency, deepness, and/or inspiration/expiration ratio. At 6 breaths per minute, a higher respiratory sinus arrhythmia afforded perception of higher positive energy, higher pleasantness, and lower arousal levels, when compared to 12 breaths per minute. Thirty minutes, 10 sessions of 6 breaths per minute practice is enough to induce an increase and cumulative effect in HRV. A lowering of adverse effects (e.g., anxiety, intrusive thoughts, fear of losing control) may also occur. With only 5 sessions, high requiring management professions may benefit of increased use of adaptive, somatic-based, emotional regulation strategies. Students subjected to high physical and psychological pressure, may decrease their anxiety levels. The first purpose of this project is to characterize HRV of yoga breathing calming techniques, with regular Yoga practitioners. Subsequently, health professionals that work in services of high emotional demands, as intensive care unities or urgency, will be evaluated relative to their adverse emotional states, before and after a program of slow breathing practice, in a pre-test (baseline) post-test design, without control group, single blind level. Levels of anxiety will be obtained through Beck anxiety inventory. Polar V800 will be used for RR interval collection data, and gHRV program will be used for HRV analysis. Recommendations from the Task Force (1996) will be followed. After breathing training, HRV augmentation associated with anxiety levels reduction are expected.

**Keywords:** *Breathing control; Yoga; Pranayama; Heart rate variability; Psychological states.*

# Healthy aging and quality of life: a scoping review

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## ABSTRACT:

Thinking the Health Indicators approach, mobilizing the profile of the target supported by the WHO paradigm regarding the profile of elderly people over 65 years of age, considering the indicators mobilized throughout life. The effectiveness of interventions throughout a person's life, focused on the healthy living principle and defining as goals the needs of people at home with critical periods throughout life, from birth to being an elderly person. Quality of life is addressed in this paradigm, from the mobilization of the person centrality to make decisions supported by empowerment, which allows them to take on the individual health project, with repercussions on the community health. Objectives: to identify the scientific evidence-based and systematic approach of Artificial Intelligence as a support and monitoring people aged 65 and over who decide to live at home. It is on this assumption that we emphasize sustainable development, with the mobilization of SDO 3, 4, 10 and 11. Methods: A Scoping Review protocol. Review question: Does the use of Virtual Coach/Robotics promote the quality of individual and community health throughout Life? Inclusion criteria P (People along Life); C (Quality of Life; Health Care/Nursing; Robotics; Healthy Aging; Person Centered Care; Community); C (Any Context along Life). Search expression: "Aged AND Healthy aging AND Artificial Intelligence OR Robotics AND Health promotion AND Empowerment", applied to PubMed and EBSCOhost, the last 5 years. Findings: According to the preferred reporting items for systematic reviews and meta-analyses (PRISMA), we included: PubMed (31) and EBSCOHost (47) papers from all world regions, with main themes: Artificial Intelligence; Social Robotics; Digital Geriatric Mental Healthcare and Digital Health Literacy. Conclusions: With this ScR is possible to identify this thematic as relevant in academic, scientific, organizational, and namely the aged person, who wants to live at home, with the professional and intergenerational support.

**Keywords:** *Aged; Artificial Intelligence; Empowerment; Healthy Aging; Robotics.*

# Sexuality education in nursing - dimensions and meanings

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## ABSTRACT:

Research on sexuality education shows that it is based on a standardized curricular dimension guided by a biological vision. There is a gap, as competencies and skills are not developed and even knowledge for their integration into clinical. The project “Sexuality Education: A Breakthrough for European Health” addresses this area from a multicentric perspective (Spain, Portugal, and Italy) with one of the aims being to increase teachers’ skills/competencies in sexuality education. We report the results of one of the Portuguese Higher Education Institutions that is part of the project. Objective: To describe teachers’ knowledge, attitudes, and barriers about sexuality education in nursing. Methods: Qualitative, descriptive, and cross-sectional study. Eleven education professionals involved in higher education (teachers and nurses) participated. Data obtained from a semi-structured interview. The Interview Guide Questions has been created considering the study of Rose et al. (2018). Data analysis will follow a thematic analysis. A system of categories with three themes and six categories emerged: sexuality education (importance and curricular integration); attitudes and comfort about sexuality education (level of willingness and level of preparation) and pedagogical barriers to sexuality education (dimension of time and specific training). Ethical principles were respected. Findings: Sexuality education is recognized as important by all but is not always integrated into theoretical or clinical training. In the attitudes a positive view emerges, but the comfort level conditions its approach, together with the recognition of the lack of preparation. Time is identified as an important barrier, as they often hide behind the lack of time to address the issue. The lack of specific training in the area of sexuality is also highlighted.

**Keywords:** *Attitudes; Education; Nursing; Sexuality.*

# Empowerment, quality of life and the person-centered model in chronic disease

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## ABSTRACT:

The person-centered care can be related to empowerment in chronic diseases, focusing on the person/family, community, and process's decision, related to promoting self-care in the therapeutic regime's management. We used the concepts of Empowerment, Orem's self-care, Meleis Transition's theory, Ryan, Sawin's (2009) theory of self-management. Objective: Understand how people with chronic illness build empowerment. Method: Qualitative cross-sectional study and grounded theory method. Developed 9 semi-structured interviews. Results: the empowerment's construction process was categorized through the theoretical explanation: "facilitating the decision according to everyone's head" and had been constituted by three processes/categories: raising awareness of the need to change; perceiving yourself as being able to change; deciding to change. This process is constituted of phases that will have to be resolved, by the person to move forward and are part of the nurses' intentionality when developing nursing interventions. Primary health care provides an excellent context for the application of the person-centered care in chronic disease, due to its proximity to the population. However, in this study, we found that none of the participants referred to the nurse as a resource or support in the management of the therapeutic regimen and they didn't attribute meaning to him. The person-centered care and their needs seem to be part of a theoretical nursing discourse but without practical application in the field. Conclusion: The person-centered care for chronic disease could give visibility to nursing, especially in achieving health gains; having implications at the level of personal satisfaction, improvement of well-being, self-care, life quality, and prevention of complications: in particular in the prevention of early deaths, decrease in the number of hospitalizations.

**Keywords:** *Empowerment; Chronic Disease; Life quality; Person-centered Care; Nursing.*



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# ORAL COMUNICATIONS 3

- EDUCATION AND TRAINING -

# The annual planning of a sporting season in Under-19 teams of national football championships

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## Correspondence

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## ABSTRACT:

The purpose of this study was to analyze how the annual planning of two under-19 (U-19) football teams of national championships is performed considering topics such as: 1) Who participates in planning; 2) Who defines the objectives; 3) Team building; 4) Preparation of the technical team; 5) Preparatory period; 6) Means of recovery; 7) Injury prevention; 8) Game model and; 9) Training sessions. Assuming the objectives defined for the research, we opted for the qualitative methodology, since it is a study focused on the interpretative paradigm. This paradigm aims to understand and explain reality as it is evidenced, without intervening on the same. The sample consisted of two U-19 football coaches with more than 10 years of experience. The semi-structured interview was used (Creswell, 2007), as a data collection tool, with the purpose of guiding the conversation with the coaches. Subsequently, a content analysis was carried out (Bogdan & Birklen 1994) aiming data collection. With our research we conclude that the team's objectives are usually defined by the technical direction of the club. The team is built by the technical direction and the coach. Technical teams are usually constituted by the head coach, two assistant coaches, a physical trainer, a goalkeeper coach, and a performance analyst. In the preparatory period, coaches tried to articulate the physical work, with the game model and the promotion of group cohesion. Ice baths are the means of recovery used by both clubs. There is an injury prevention program. The game model is defined by the technical direction of the club; One of the interviewed indicated that the training sessions are planned at the beginning of the week, while the other stated that the sessions are planned one day before they are implemented.

**Keywords:** *Annual planning; Periodization; Football.*



# What ex-professional football players think about the football training process

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## ABSTRACT:

**Objectives:** The purpose of this study was to analyze the ex-professional football players perception about some training process aspects, namely the skills that the head coach must have, preparatory period organization, exercise operationalization, tactical schemes training, observation and analysis, importance of the team captain and physical training. **Methods:** This paradigm aims to understand and explain reality as it is evident, without intervention on this reality. The sample focused on two ex-professional soccer players, with more than 10 years of experience in the 1st and 2nd Portuguese football leagues. The semi-structured interview was used, as a data collection tool, for the purpose guiding the conversation with players. Subsequently, a content analysis was carried out (Bogdan & Birklen, 1994), aiming data collection. **Findings:** The findings of the study reveal that the interviewees understand that the head coach should be primarily a people manager and methodically organized, not being relevant that he was a former football player. It is stated that the existence of subgroups within the team is normal, however it is important that they do not become toxic, and it is noted that the team captain should have a role of connection between the head coach and the team. The ex-former players mention the importance of the assistant coach being a person capable of being close to the group. It is perceived by the interviewees that the current players pre-prepare better for the competition (physical, tactical, mental) than the players of yore; that pre-season work of a physical nature gave way to the work of tactical predominance; that in the training session the SSGs are most used in counterpoint to the formal game, adding that players have preferred reduced game situations and finishing. About the observation of the opponent, in the past very long videos were made, being now replaced by short videos.

**Keywords:** *Qualitative methodologies; Football; Training process.*

# Coach Education - Pathways and Possibilities

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## ABSTRACT:

This research project aims to reflect upon Coach Education and the entities that can ensure it with the desirable and needed quality, with special emphasis on Higher Education Institutions. In this regard, the goals are i) To collect information about the Coach (characteristics, skills, knowledge, action); ii) To identify the most valued aspects in the Coaches (Players, Sporting Managers, Supporters); iii) To understand what the coaches value most in their professional action; iv) To propose a Coach Education possibility. Three studies are planned to achieve the proposed objectives. Study I focuses on conducting a Systematic Review in the Coach's Intervention Area, and the articles that agree with the defined inclusion criteria and, simultaneously, do not include any exclusion factor, within the scope of the Coach's Intervention, will be considered; Study II collects and analyses (by means of a questionnaire) information on the most valued skills in the action of the Coach, by the different participants in the sports phenomenon of the football modality (125 players, 25 sports managers, 125 supporters and 100 coaches); Study III aims to assess the effectiveness of the participation of Higher Education Institutions and Coach Developers in the training of coaches of all Grades (I, II, III, IV). We believe that the research will show, in line with the existing literature, that Higher Education Institutions and "Coach Developers", having the ability to respond to the demands that arise in this area as well as given their capabilities and specific features and with the prospect of converging, should undertake the training of coaches, not only at the basic or intermediate levels of the professional hierarchy, but also of those at the level of excellence.

**Keywords:** *Coach; Training models; Football.*

# FITEENS - Promoting physical activity and healthy habits in sedentary teenagers

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## ABSTRACT:

The aim of this project is to implement an engaging educational intervention using an mobile phone application targeted at teenagers to: i) raise awareness on the importance of physical activity and healthy habits; ii) support physical education teachers to acquire a wide knowledge on how to develop on-line lessons and promote their students to engage in physical activity; iii) Develop an amusing mobile phone application based on a gamification approach to motivate teenagers to be physically active. At least 12 staff members and physical education teachers from each partner will attend the Transnational Training Event which will intend to have a multiplying effect. Partners will create a document that will be uploaded on the FITeens website and social media accounts explaining the different activities. Several physical education teachers per country will access and complete the online in-service training, which will help them acquire a wide knowledge regarding the promotion of healthy habits and engaging activities. The application will be tested by at least 240 students and at least 120 representatives from educational institutions and the sport field. It is expected that partners develop the following results: i) a complete toolkit for teachers that will cover the different elements of the Big 6 (i.e., physical activity, sufficient sleep, low screen time, consumption of alcohol and tobacco, and intake of healthy food); ii) a web application with a visual aspect similar to ClassDojo that will contain important elements related to the Big 6, that will help students acquire healthier lifestyles in an engaging way; iii) a course on a learning management system containing some useful knowledge about teaching physical education using digital tools and including the Big 6 will be created.

**Keywords:** *Physical Activity; Health; Habits; Teenagers.*



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# ORAL COMUNICTIIONS 3

- EDUCATION AND TRAINING -

# The physical demands of match-play in academy and senior soccer players from the Scottish premiership

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## ABSTRACT:

The present study aimed to assess the physical match performance among senior and youth soccer players from an elite Scottish Premiership club during the 2021/2022 season. Twenty-two first team ( $25.9 \pm 4.5$  years,  $78.3 \pm 8.2$  kg,  $1.82 \pm 0.07$  cm) and 16 youth players ( $16.8 \pm 0.9$  years,  $70.1 \pm 6.8$  kg,  $177 \pm 5.8$  cm) were examined. A selection of physical match performance variables was measured using a global positioning system. Linear mixed-effect regressions revealed for all examined variables no significant differences between first team and U-18 players and no significant differences between playing level by position interaction. Across both teams, Centre Backs compared to Wing Backs, showed a 295 m ( $p < 0.01$ ) lower high-intensity distance, and performed on average 36 fewer very-high intensity decelerations ( $p = 0.03$ ). Comparing to Wide Midfielders, Centre Backs showed lower total (1297 m,  $p = 0.01$ ), high-intensity (350 m,  $p = 0.01$ ), and sprint (167 m,  $p < 0.01$ ) distances. Sprint distance was also lower in Centre Backs vs. Strikers (118 m,  $p = 0.03$ ), and in Central Midfielders vs. both Strikers (104 m,  $p = 0.03$ ) and Wide Mid-fielders (154 m,  $p = 0.01$ ). The present findings highlight the physical match performance of elite Scottish players and provide useful information within the context of understanding how methods of physical development of youth soccer are implemented in different countries.

**Keywords:** *Physical performance; Match-day; Load monitoring; Elite level; Youth.*

# Ultimate frisbee players: competitive with good spirit - overview

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## ABSTRACT:

Scientific research on Ultimate Frisbee (UF) is yet very limited and results are uncertain. We are facing a new and challenging sport whose promotion has been based on an identity associated with a sport for all; with ethical appreciation and opportunity to practice based on gender equality and self-referencing. It has been shown that girls have lower participation rates in formal sport than boys. Typically, girls identify social aspects, such as making friends and positive interactions with others, as the most important factors in their sporting experiences. In this sense, the purpose of this study was two-fold: first, to examine the experience, training history, European Beach Ultimate Championship (EBUC) participation and goal orientations of international UF players; second, to evaluate the contribution of these variables in a discriminant function to classify players according to SOTG level and competitive level. The effect of SOTG level was particularly observed for national team world ranking, EBUC games played and classification. The interpretation of the SOTG varies with the level of competition, history of games between the same teams and the experience of the players. According to Amoroso et al. (2021), players of the highest competitive level divisions were, on average, younger and less experienced than the intermediate and lowest level players but reported a higher number of weekly training sessions and volume. Results enable players to be more conscience of their actions, help teams to improve their spirit and celebrate SOTG by awarding a prize to the team that gets the higher score. This system may provide a range of opportunities to promote justice and respect in sport, providing a positive image in terms of individual and team development and integrity.

**Keywords:** *Self- Refereeing; Competition; Spirit of the game; Respect; Teamwork.*

# Adapted physical activity: curricular internship in the 1st cycle of basic education with autism spectrum disorders

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## Correspondence

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## ABSTRACT:

The Study Plan for the Degree in Sport and Physical Activity at ESE - IPCB includes the minor in Sport for People with Disabilities, where in the Curricular Units of Project and Practical Intervention I-II the interns work with children from the 1st Cycle of Basic Education with Autism Spectrum Disorder. Two students carry out internship activities at the Structured Teaching Unit of the Agrupamento de Escolas Afonso de Paiva, Escola Básica de São Tiago – Castelo Branco. According to the Advisors, interns are encouraged to hold sessions and write a Portfolio with the activities developed in the Internship, constituting a first step in planning, and preparing the teaching. They will present the different subjects/tasks requested, namely: Session Sheets, Reflection Sheets, Observation Sheets, Weekly/Monthly Record Maps, Work done in tutorial sessions or at home (Reading Sheets), Required Works (from theoretical and/or practical nature), particularly focusing on work with children from the 1st Cycle of Basic Education. From the analysis of the Reflection Sheets, we can conclude: (a) in activities in the Structured Teaching Unit an improvement in eye contact, writing, communication, control of stereotypes and defiant/aggressive/tantrum behavior; (b) from the intervention through the Psychomotricity sessions, an improvement was identified in several areas of motor and social development, in particular in the improvement of concentration and in the decrease of anxiety, in the independence of decision-making and in the control of responses.

**Keywords:** *Internship; Adapted Physical Education; 1st Cycle of Basic Education; Autism Spectrum Disorder; sessions.*



# Adapted physical activity: curricular internship in the 2nd and 3rd cycles of basic education with children with autism spectrum disorders

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## ABSTRACT:

The Study Plan for the Degree in Sport and Physical Activity at ESE – IPCB includes the minor Sports for People with Disabilities, where in the scope of the Curricular Units of Project and Practical Intervention I-II the interns work with children from the 2nd grade and 3rd Basic Education Cycles with Autism Spectrum Disorder. Two students carry out internship activities at the Structured Teaching Unit of the Agrupamento de Escolas Afonso de Paiva, Escola Básica Afonso de Paiva – Castelo Branco. According to the Supervisors, interns are encouraged to hold sessions and write a Portfolio with the activities developed in the Internship, constituting a first step in planning and preparing the teaching. The different activities/tasks requested will be presented: Session Sheets, Reflection Sheets, Observation Sheets, Weekly/Monthly Record Maps, Work done in the tutorial sessions or at home (Reading Sheets), Requested Works (from theoretical and/or practical nature), particularly focusing on work with children from the 2nd grade and 3rd EB Cycles of Basic Education. From the analysis of the Reflection Sheets, we can conclude: (a) in activities in the Structured Teaching Unit an improvement in eye contact, reading schedules, control of stereotypes and defiant/aggressive/tantrum behavior; (b) the intervention in Physical Education and Psychomotricity classes proved to be important for the general development of the students, in particular in improving concentration and reducing anxiety, independence in decision making.

**Keywords:** *Internship; Adapted Physical Education; 2nd Cycle of Basic Education; Autism Spectrum Disorder; Sessions.*

# Reflection on curricular internship in adapted sport: reflection sheets

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## ABSTRACT:

The curricular internship allows for an easier transition from higher education to the world of work and acts as an increase in future employment opportunities (Ryan et al., 1996). The benefits of the internship are not reduced to the integration of the individual into the labor market, it is also important for personal creation, such as the evolution of collective and interpersonal skills. The objectives of the internship are that the student “enters the labor market” earlier in a supervised way. This is beneficial because he starts early on to put into practice all the knowledge he has acquired on the course. Two students carry out training activities in the Sports Section of the APPACDM in Castelo Branco, in the modalities of Swimming, Boccia and Table Tennis. In agreement with the supervisors, it was decided that the trainees should produce an annual plan, as a first step in the planning and preparation of teaching, as well as reflections, ideas about the organization and training plans. The study focuses on the student’s reflection and self-evaluation as an adapted sports coach in terms of conducting the sessions and planning them through the comparison of key points concerning objectives, description of exercises, representation of exercises and the timing of the same in the training plans and the completion of evaluative self-assessment tables, in theoretical and practical terms, filled in at the end of each session of the three disciplines included in the training period. The instruments were elaborated through a notebook of specific exercises for each modality taught, evaluating the critical components of the technical gestures. The observation data will be processed on computer (Microsoft Excel 2010). The applications refers to an initial evaluation (October to December), with all technical gestures being evaluated on average with 3 on a scale of 1 to 4.

**Keywords:** *Traineeship; Adapted sports; Trainees; Competences; Specific objectives.*





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**POSTERS.**  
*POSTER COMMUNICATIONS 1 -*

## GREEN TEAM

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### ABSTRACT:

GREEN TEAM – Sustainability Strategy for Greener and more Inclusive Sport Events, is an Erasmus+ Sport project that seeks to foster sustainable, inclusive sporting events by stressing cooperation among the local agents involved. Also, pursues to encourage sports federations (more than 10,000 of them in Europe), administrations and companies in the sport sector to be more sustainable and inclusive when holding sporting events. To do so, a sustainability seal in sport will be created. The confederations or top sport organizations (according to the different partner countries) will hand it out to the federations, which can get it by taking an online course (which will lay the groundwork of the theoretical part) and holding a sustainable sporting event (the practical part). To accompany this learning, handbooks and audio-visual materials will be created (with a low environmental impact) for sports confederations, federations, the private sector, and administrations. Likewise, with the goal of promoting inclusion, sustainability campaigns will come hand in hand with promotion and the mechanisms needed to integrate groups at risk of exclusion in sports participation. Complementary, this project was developed to further promote active citizenship and healthy habits via care for the environment and its inhabitants. Thus, this project seeks to use the power of sport to contribute to the necessary struggle against climate change and to promote more resilient, diverse, and egalitarian societies. This project will employ a mixed method, both quantitative and qualitative, namely, to develop surveys, literature review, eLearning platform and training sessions. These outputs will be disseminated in all partners countries (and languages): Portugal, Spain, Germany, France, Italy, Romania, and Lithuania.

**Keywords:** *Digitization; Green events; Inclusion; Sport; Sustainable sport.*

# Work-family conflicts, cognitive appraisal, and burnout: testing the mediation effect with structural equation modelling

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## ABSTRACT:

Work-family conflict constitutes an important source of occupational stress predicting teachers' burnout, and cognitive variables have shown to be core structures in explaining human adaptation to stress. Nevertheless, the role of cognitive appraisal needs to be fully analyzed to comprehend how it can mediate the relationship between stress and burnout. In order to understand the potential mediation of cognitive appraisal in the relationship between stress and burnout, we adopted conceptual models of stress that highlighted the value of cognitive appraisal on positive and negative reactions to work demands. Also, we analysed the potential moderation of sex and age in the relationship between work-family conflict, cognitive appraisal, and burnout due in-consistent findings on how these personal variables can interfere on these relations. In this study, we used Structural Equation Modelling (SEM) to test the mediating of cognitive appraisal in the relationship between work-family conflicts and burnout. A survey with measures of work-family conflicts, cognitive appraisal, and burnout was administered to the participants consisting of 438 Portuguese teachers from kindergarten through high school, aged between 28 and 67 years ( $M=46.85$ ;  $SD=7.88$ ), 304 of whom were females (69.41%). The results confirmed that cognitive appraisal partially mediated the relationship between work-family conflict and burnout. The mediation effect of cognitive appraisal on the relationship between work-family conflict and burnout was invariant regardless of teachers' sex or age. In sum, cognitive, appraisal should be considered in order to understand teachers' adaptation to work.

**Keywords:** *Teachers; Burnout; Cognitive Appraisal; Work-family Conflicts; Structural Equation Modelling.*

# Quality of life of nurses in work context: A scoping review

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## ABSTRACT:

Scientific evidence emphasizes that the quality of care provided by nurses is influenced by several factors, such as interaction in the professional environment, remuneration, recognition, and appreciation of the function performed, in addition to factors such as health, leisure and affection that are directly related to quality of life. The professional practice of nurses requires highly complex interventions and close human relationships, dealing with all types of emotions, including death. Considering nurses as a fundamental element in health organizations, there is a need to analyze their quality of life and challenge managers' reflection on the importance of nursing to develop strategies that favor quality of life. Objective: to map the scientific evidence on the quality of life of nurses in the work context. Methods: A Scoping Review based on the Joanna Briggs Institute (2020) with the question: What is the quality of life of nurses in the work context? The MeSH (2023) descriptors combined the search strategy: Quality of life AND Nurses\* AND Work, according to Participants, Concept, Context. Embase data sources: EBSCOhost platform: CI-NAHL®, MedicLatina and MEDLINE, with defined limits: Full text and abstract available; Any type of study: (quantitative, qualitative, mixed); Language: English, Spanish, and Portuguese. Results: In the eight articles selected, nurses have a lower quality of life due to a moderate level of happiness and negative feelings in the provision of care, high workload, ineffective management policies, unfair remuneration, scarcity of equipment and few opportunities for career development. After Covid-19, high levels of compassion satisfaction and moderate levels of burnout were found. Nurses who work rotating shifts are more likely to be overweight, have total and abdominal fat. Organizations can promote nurses' health by ensuring their participation in decision-making and promoting positive strategies to improve teamwork and establish a support system for these professionals.

**Keywords:** *Nurse; Quality of life; Work.*



# Interpretation of many-valuedness in quality-of-life instruments

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## ABSTRACT:

The objective of this paper is to underline the importance of providing clear interpretations of many-valuedness appearing in quality of life (QoL) instruments, and also to present a methodology for provision of such clearness. Doing so, we view QoL scales as originating within WHO [WHO QoL Group, 1998] and as being a prerequisite to the broader International Classification of functioning (ICF). Some scales, like the Short Form-36 (SF-36) [Ware and Sherbourne, 1992] and its shorter Variant SF-12 [Ware et al. 1996] contain items that are identifiable within ICF and can therefore be seen as a kind of generic QoL ICF Core Sets, even if never named as such. EuroCol's questionnaire part of EQ-5D (EQ-5D-5L and EQ-5D-3L) is also related to ICF items [Mayo et al. 2011], whereas the VAS (Visual Assessment Scale) part in the EuroCol instruments comes without interpretations and cannot immediately be discretized to match the ICF 5-scale, similarly as further the 5L Likert cannot be seen as exactly matching ICF's 5-scale. We provide methodology and findings to make relations between respective many-valuedness appear in QoL instruments and ICF more precise. In the case of the EuroCol instruments, the EQ VAS is conceptually different from the EQ index, as it reflects the individual perspective as compared to the values given by the levels in health states which are biased by societal perspectives. VAS has been used in various forms since the second half of the 19th century, with work developed in the 1880's by Galton. Interpretations of visual scales require a blending of skewed and non-skewed situations. The paper will provide an example to illuminate objective and methodology and will also view quality of life assessment as part of (comprehensive) geriatric assessment.

**Keywords:** *Functioning; Many-valuedness; Visual Assessment Scales.*

# New generation of oenological products-potassium polyaspartate to promote tartaric stability in white wine

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## ABSTRACT:

Tartrate precipitation is one of the most common problems of wine physical-chemical instability. Potassium bitartrate and calcium tartrate precipitations are undesirable phenomena which can occur in bottled wines, especially when these are stored at low temperatures. The occurrence of tartrate salt crystals (potassium hydrogen tartrate – KHT and calcium tartrate – CaT) in bottles has serious consequences in the final aspect of the wine and therefore on the consumer's acceptance, making tartrate wine stabilization virtually mandatory before bottling.

There is a new generation of oenological products to promote tartaric stability, products based on potassium polyaspartate. The aim of this study was to compare the effect of four products based on potassium polyaspartate (Antartika V40, Antartika VR, Antartica Fresh and Antartica Duo), with three products of widespread use in wineries (carboxymethylcellulose (CMC), metatartaric acid and mannoproteins), in the tartaric stability, in the turbidity and in the filterability of wines, namely in the filterability index and maximum filtrate volume. Two doses of each product (d1=minimum dose and d2=maximum dose, recommended) were applied to white wine, with three replicates. The effect of these products over time was evaluated: at 7 days, one month, three months and five months. The potassium polyaspartate-based products promoted the tartaric stability of white wine for the two doses applied and throughout the study time, except for Antartica Duo, confirming that this product is not recommended for white wine. CMC and mannoproteins showed good results comparable to polyaspartates, contrary to metatartaric acid, which showed the worst results. Antartika V40, Antart-ika VR, Antartica Fresh have been shown to be effective in promoting tartaric stability of white wine, without contributing to increase turbidity or affecting its filterability.

**Keywords:** *Tartrate instability; Potassium polyaspartate; Carboxymethylcellulose; Mannoproteins; metatartaric acid.*

# Development and growth of broccoli (Brassica Oleracea L. Var. Italica Plenck) for industry application to "Parthenon" and "titanium" varieties

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## ABSTRACT:

The broccoli for industry is an important activity in the Lezíria Tejo region. The choice of varieties to plant is conditioned by a set of factors: adaptation to cultural conditions, yield, tolerance to diseases and pests and quality requirements by the industry. The present work aimed to evaluate the development and growth of 2 industrial broccoli cultivars (Parthenon and Titanium). For this study, a trial was installed, in the locality of Golegã, under real cultivation conditions. Plant development was evaluated in situ. Biweekly, 8 plants were randomly harvested from each treatment, determining the green weight and dry weight of each of its components (leaves, stems and inflorescence) and the mean diameter of the inflorescences. In the end, the productivity and the average diameter of the inflorescences were estimated. The Titanium variety showed higher yield (14888 kg/ha) in relation to Parthenon (11127 kg/ha), with statistically significant differences. The head formation started in Titanium with a sum of temperatures in the order of 470–500°Cday, while the Parthenon plants started this phase at 500–550°Cday. The Parthenon has a higher total plant PS than the Titanium variety. It was possible to adjust the logistic model to the two varieties. The model estimated the value of 234,7 g/Plt and 208,1 g/Plt of total PS, respectively for Parthenon and Titanium. At 81 (DAP) days after planting, the Titanium variety had slightly larger head diameters than the Parthenon (162mm in Titanium and 157mm in Parthenon), although the differences are not significant (p value>0.05). Both varieties reached the highest percentage of commercial heads at 81 DAP, with a sum of temperatures between 900 and 1000°C day.

**Keywords:** *Brassica oleracea L. var. italica Plenck; Varieties; Growth; Development; Sum of Temperatures.*

# Economic and energy assessment of cover crops in the production system of Tagus river region

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## ABSTRACT:

Cover crops may be a way to counter the practice of monoculture, still very common in the Tagus River region. Cover crops contribute to a greater sustainability of production systems and act to improve the soil, promoting its cover in the autumn-winter season, reducing erosion, weeds, and providing nutrients through their residues. The installation of crops involves energy and monetary charges. The main objective of this work was the quantification of the energy and economic values contained in each operation, namely, in the tractors and equipment used and in the production factors. Were considered three cover crops, located in the Golegã region, under normal cultivation conditions: ryegrass, forage intercropping and *Raphanus sativus* L.. For the three crops studied, an economic analysis of the activity was carried out and the energy balances associated with each crop were evaluated. At an economic level, the intercropping for hay showed a higher gross margin (plus 35,5%) compared to the other treatments, mainly due to lower costs at the harvest level. However, the energetic output was 16 times higher than input of the ryegrass and 15,5 higher in the intercropping.

**Keywords:** *Cover crops; Ryegrass; Forage intercropping; Raphanus sativus L.*

## Will be there a response to phosphorus applications in maize? evaluation of the response to phosphate fertilization in the Ribatejo region

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### ABSTRACT:

In Ribatejo region, and particularly in Lezíria do Tejo the soils have high P<sub>2</sub>O<sub>5</sub> contents. Recent European legislation (EU Regulation 2019/1009), the energy crisis and the disruption of the fertilizer market due to the Ukraine war, impose a greater rationalization of the fertilizers use, namely phosphate fertilizers. In 2022, to evaluate the effect of different P<sub>2</sub>O<sub>5</sub> dosages in maize, a totally randomized plots field trial was set up at Quinta do Galinheiro, ESAS (Santarém). The following P<sub>2</sub>O<sub>5</sub> rates were evaluated P<sub>0-0</sub> kg/ha; P<sub>40-40</sub> kg/ha; P<sub>80-80</sub> kg/ha; P<sub>120-120</sub> kg/ha. The trial was installed in a Eutric Cambisol with sandy loam texture and a P<sub>2</sub>O<sub>5</sub> high content (>200 mg/kg). At harvest, the biomass distribution in the plant, yield components (productive population, number of grains/m<sup>2</sup> and thousand grain weight – TGW), yield and nutrient content in the plant dry matter, were measured. The average number of plants at harvest was 92380 plants/ha; TGW values were observed between 420 and 454 g; the number of grains/m<sup>2</sup> between 4039 and 4270 and the average yield, converted to 14% moisture, from 15240 to 17557 kg/ha. The variance analysis did not register statistically significant effects between treatments for the mentioned parameters. So, for the soil and climate conditions in which the trial was carried out, there is not recommended phosphate fertilizations.

**Keywords:** *Fertilization; Phosphorus; Maize; Yield.*

# Insect consumption and health – a systematic review of human RCTs

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## ABSTRACT:

Edible insects have great potential as a healthier and more sustainable alternative source of animal protein for human consumption. Insects have high content in protein and micronutrients, such as vitamin B12, iron and zinc, which enhances possible human health benefits. The aim of this study was to update the information of the health effects of insect consumption obtained from human experimental studies. Methodology - A search was performed in Pubmed, Web of Science and Science Direct. Screening was based on inclusion criteria: human consumption of insect-based product, age  $\geq 18$ , health-related outcomes, published on the last 10 years. Reviews were reference-checked for additional papers. A total of 9 studies were selected for analysis. Two studies focused on nutrient absorption: three on appetite regulation, two on muscle protein synthesis, one on human microbiota and one on treatment of Chronic Obstructive Pulmonary Disease (COPD). Interventions included insect powder (crickets, buffalo larvae, and meal-worm) incorporated in meals and processed foods, except for COPD study where patients ingested caoshi silkworm granules (CCSGs). Amino Acid levels from insect protein peaked later than whey and soy-based proteins, suggesting insect protein as a “slow” protein. An identical rate of protein synthesis was observed after ingestion of insect or milk protein. Higher satiety and lower hunger were observed for insect-protein meals in two appetite regulation studies. Iron absorption from cricket products was low, which may be explained by chitin and other inhibitors in the cricket biomass. On the other hand, one study has shown that cricket chitin may work as a prebiotic, improving gastrointestinal function. Finally, consumption of CCSGs for 3 months resulted in an improvement in the evolution of the COPD patients’ symptoms and could be an effective intervention. Conclusion: Insect protein may be suitable for exercise protein supplementation and appetite regulation, with additional benefits as probiotic.

**Keywords:** *Edible insects; Appetite regulation; Protein synthesis; Microbiota.*

# Agriculture: how to make it more sustainable?

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## ABSTRACT:

The increase in population expected for the coming years makes it urgent to produce an even greater amount of food in a sustainable way. The need for means of diagnosing existing conditions and problems in the field is fundamental for a more rational use of production factors to guarantee food security and a better life quality for all. The goal for this study was to anticipate the detection of problems that may occur in the agricultural field using vegetation indices (Normalized Difference Vegetation Index (NDVI); Green NDVI (GNDVI); Normalized Difference of Red Edge Vegetation Index (NDRE); Normalized Difference Moisture Index (NDMI)) so that producers can act quickly, in a localized way, reducing inputs and maximizing the yield of the agricultural plots. The vegetation index algorithms were obtained from satellite images (Sentinel 2) using ArcGisTM. The study took place in a field located in the Ribatejo, with approximately 12 ha, of maize cultivation. The results showed: a) there is good correlation between the NDVI and the NDMI ( $R^2=0.98$ ); b) NDVI is less able to differentiate the vegetative vigor of the crop after flowering; c) the NDRE was the most favorable index in the discrimination of vegetation classes after maize flowering until the pasty grain stage, managing to identify earlier decreases in vegetative vigor. These results suggest that vegetation indices offer essential support for safer agri-food production generating a healthier food system for people and the planet.

**Keywords:** *Maize; Vegetation indices; Yield; Vegetative vigor.*

# Adapting land cover to land use capacity: safe food production

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## ABSTRACT:

The adequate use of natural resources is fundamental for the preservation of the environment. Knowing the soil, what its current occupation is and what occupation would be appropriate, is a valuable contribution to a more sustainable agriculture, capable of producing better quality products with less environmental impact. The main of this study was to identify and classify areas of land use and land cover conflicts in an agricultural field, occupied with maize crop and located in the district of Santarém (8.637453W; 39.320977N). To achieve this goal, we used the soil map, the land use and land cover cartography, the land use capacity map, at scale 1:50000, sheet 27-C, digitalized and georeferenced, the digital elevation model and data from Google Earth Pro, developed in ArcGISTM. Performing a spatial analysis of land use using data from different sources it was possible to identify two conflict zones - overuse (approximately 72%) and suitable (approximately 28%) - which allowed the conclusion that the existent crop is not, for the largest of the field, the most suitable. The installation of a crop more suited to the type of soil advocates better soil conservation and safer food production, contributing to an improvement in the life of consumers.

**Keywords:** *Land cover conflict; Land use; Mapping.*



## 3D-printed food – an approach for food production and new markets

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### ABSTRACT:

Presentation of foods is essential to promote the acceptance of diversified food products and innovative ingredients. Currently, there is an increasing market for customized food products, most of which are of limited traditional production and therefore have a high cost. Emerging as a potential alternative, 3D printing technology can be successfully applied in the food sector and 3D food applications are based on extrusion technology that can use cereal or chocolate-derived products as raw materials, but also applications with alternative ingredients such as proteins and fibers have emerged. This technology allows the construction of food objects, without the need for other specific tools, molds, or human intervention. This way, an increase in production, efficiency, as well as a reduction in manufacturing costs is possible. The 3D printing is one of the industrial developments that can expand and revolutionize the food industry through factors such as: improved structure, attractive features, and personalized nutrition. Studies conducted with the aim of comparing characteristics between some 3D printed foods and those produced by traditional methods, demonstrated, in favor of the former, a considerable distinction in terms of color intensity, rheological behavior, improvements in volume and less variation in format. Such attributes can improve acceptance of printed foods and reinvent sustainable, functional meals. The 3D printing should be considered an opportunity for the development of new business strategies, as well as for increasing the sustainability of food supply chains. This study provides a review of the research made with focus in 3D printed food industry: the processes, the products, and the current challenges that this technology faces to grow and prosper, taking advantage of new opportunities and new markets.

**Keywords:** *3D printed food; Customized food products; New markets.*

# "Insect-based foods" literacy - contributions to healthier food choices

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## ABSTRACT:

Insects are already used for direct consumption or as a nutritional ingredient among diets of consumers throughout the world. Europe and North America consumers are starting to show some interest to include this new protein source into their diets. Proteins are the most significant components of insect's bodies enabling the potential of edible insects when these are compared to conventional protein sources such as meat. Accordingly, to Food and Agriculture Organization of the United Nations they also offer economic opportunities and are an underutilized resource. Despite this, investigation on European consumer acceptance shows, that it remains in low levels. Literature also refers several factors that can influence the willingness to eat insect-based foods and recognized that Food literacy may be an important contribution for healthier and more sustainable food choices. The aim of this study is to contribute for the development of literacy programs focused on the consumption of edible insects based on the more recent findings. Several authors refer to the importance of linking the level of literacy with entomophagy, an approach that can be decisive. For this systematic review 896 papers (duplicates removed), from 3 databases (Pubmed, Web of Science and Science Direct) were identified. After applying the inclusion criteria, 120 articles were found to explore the consumer acceptance on entomophagy, mostly in Western societies, traditionally more reluctant. The results obtained, for this ongoing review, allow us to develop future programs to reduce neophobic reactions, enhancing positive attitudes towards insect-based foods through the proposal of food literacy programs.

**Keywords:** *Edible insects; Food literacy; Food choices.*

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# Food systems transformation – urgency, actions, and pathways research-based

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## ABSTRACT:

United Nations Agencies presented the complexity of the food system schemas showing that these systems integrate socio-cultural, economic, political, biophysical, environmental, infrastructure and technical drivers that interact at different levels along the entire food supply chain to deliver outcomes for human beings and the planet. Current crisis, in consequence with war in Europe, with the rising energy prices, the logistics uncertainty and new challenges, affects all levels of the food supply chain. Food producers, retailers and consumers need firmly to (re)think how food systems can answer to new models. In Portugal, the Resolution of the Council of Ministers nº 86/2020 approved the Innovation Agenda for Agriculture, stating the objective of promoting the growth of the agri-food sector that allows an adequate response to the mitigation of climate change, of reducing social-demographic differences, and promoting the digital transition. The goals set out in the Agenda are aligned with the guidelines of the United Nations Sustainable Development Goals, with the commitments of the European Ecological Pact, namely with regard to the “From Farm to Plate” Strategy and European Union Biodiversity Strategy to 2030, among other policies. In this perspective it is consensual that it will be needed to promote “knowledge and innovation” in agrifood practices. However, several authors alert, as Calo et al. (2021) that “although evidence continues to indicate an urgent need to transition food systems (...) toward agroecological production, there is little sign of significant policy commitment”. Webb et al. (2020) refers that Confidence in Science is needed to trans-late research into science-led policies. In this study will be discussed how policies empower consumers to make more informed food choices, granting access to all, to healthy and sustainable diets, and in what measure they support technology along food value chains.

**Keywords:** *Food Systems; Food Policies; Food Value Chains.*



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**POSTERS.**  
*POSTER COMMUNICATIONS 2 -*

# Rating of perceived exertion in small sided games. An analysis in youth and senior soccer players

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## ABSTRACT:

The rating of perceived exertion (RPE) is a reliable instrument for analyzing exercise intensity in soccer athletes (Haddad et al., 2017; Nakamura et al., 2010). Small-sided games (SSG) with the same number (N) of players, for example 4X4, have higher intensity levels than games with different N (e.g., 6X4). Thus, the aim of this study was to compare RPE values in two SSG (4X4 and 6X4, respectively) for both senior and under-12 soccer players. Data collection was carried out in 13 senior players (age, 23.8±4.4) and 13 under-12 (age, 10.5±0.5) from the same club in Torres Vedras, using the RPE scale. Athletes performed the same SSG with the constraint of two touches in the ball in two different sessions in two consecutive weeks. The weeks presented the same training characteristics. In the first week, the SSG consisted in 4X4 while in the second weeks consisted in 6X4 plus the use of goalkeepers. The results showed differences between SSG between 4x4 and 6X4 in under-12 players ( $p=0.157$ ). Nonetheless, higher RPE values were presented in the 4X4 than in the 6X4 in the senior players ( $p=0.003$ ). It was concluded that RPE had a significant effect in seniors while no differences were observed for under-12 players. Moreover, there was a tendency of higher values in the SSG of 4X4 than 6X4. These findings help coaches to apply better training designs to the specific categories of soccer players.

**Keywords:** *Perceived effort; Intensity; Football; Young, Amateur players.*

## Relationship between perceived exertion and wellness in soccer players

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### ABSTRACT:

The aim of the present study was to analyze the relationship between the rated perceived exertion (RPE), through the scale of Borg and the Hooper Index (stress, sleep, fatigue, and muscle soreness). It was intend-ed to answer the following question: Is the rated perceived exertion influenced by wellness? A total of 16 male soccer players participated in the study (age:  $15,36 \pm 0,50$  years; height:  $173 \pm 5,02$  cm; weight:  $68,73 \pm 12,46$ cm). The questionnaires were applied in 12 training sessions. The RPE was sent to the participants cell phones about 30 minutes after the session. The Hooper Index was answered by the participants directly on the coaches' cell phones about 30 minutes before training. Normality tests were carried out to apply the Pearson's or Spearman's coefficient. Then, two analyses were made: one by training session, and other individual participants. The main results showed that only in training session six there was a significant relationship, between the stress and RPE ( $p=0,011$ ). For the athletes, only athlete number seven showed a significant relationship, namely between the sleep and RPE ( $p=0,006$ ). In general, there was no relationship between RPE and the wellness variables. The lack of knowledge and routine in answering the two questionnaires, the few sessions and the few athletes evaluated, may have contributed to the lack of significant results.

**Keywords:** *Borg scale; Well-being; Internal Load; Football.*

# Associations among maturity, accumulated work-load, physiological, and body composition factors in youth soccer players: a comparison between playing positions

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## ABSTRACT:

The purposes of this study were: (i) to analyze the correlation between accumulated workload (AW)—based on season periods—with maturity, linear sprints, maximum oxygen uptake (VO<sub>2</sub>max), maximum heart rate, and body composition; and (ii) to compare the playing positions based on the mentioned parameters. Twenty-one elite soccer players under the age of 14 participated in the study. They were divided into five groups based on playing positions. The in-season weekly AW was recorded for 26 weeks into two separated periods of 13 weeks (AW-1 and AW-2). Similarly, the following parameters were assessed: body mass, standing and sitting height, body mass index, body fat percentage, maturity offset, age at peak height velocity (PHV), sprinting ability (10 m and 30 m), and VO<sub>2</sub>max. The main significant differences between playing positions were found for weight, height, sitting height, and sprinting at 10 m and 30 m. No correlation was observed between AW (based on periods) and maturity or between VO<sub>2</sub>max and AW-2. AW-1 denoted a large positive correlation with AW-2. AW-1 had a moderate negative correlation with VO<sub>2</sub>max, whereas PHV and maturity presented a strong negative correlation. Young soccer players' maturity status-es and fitness levels do not imply differences between AW-1 and AW-2. However, the higher the AW in the first half of the season, the higher the AW in the second half. The absence of significant differences between player positions could be associated with the similar training regardless of the playing position. Moreover, soccer positively influences performance in short sprints (10 m), midfielders being the fastest.

**Keywords:** *Young; Accumulated training load; Football; Peak height velocity; Sprint.*



## Self-refereeing in ultimate frisbee during joint junior ultimate championship (JJUC2022) preliminary results

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### ABSTRACT:

There are no traditional referees in ultimate frisbee. It is the players who take on this task, therefore, they must know the rules, be fair-minded and truthful, explain their viewpoint clearly and briefly, allow opponents a reasonable chance to speak and resolve disputes as quickly as possible, using respectful language. The number one rule of this sport is to respect the Spirit of the Game (SOTG), that guides them how to play competitively while not ruining the joy of play of the opponent and be fair-minded. The World Youth Ultimate Championship and European Youth Ultimate Championship, held together in Wrocław, Poland, from May 6th to 13th of August 2022, more than 1000 players without referees. SOTG Scoring System was measured based on a marking system used immediately after each game. Players assessed the opposing team overall SOTG, measured by the sum of the scores obtained in five questions addressing the following domains: 1) Knowledge and use of the rules, 2) Fouls and body contact, 3) Fair-mindedness, 4) Positive attitude and self-control and 5) Communication. Answers were given on a 5-point Likert scale. The findings provide important information to Physical Education Teachers, Coaches and Sport Consultants and it may be of use in formulating SOTG preparation programs that could foster the experience of sportsmanship and facilitate athletes ethical conduct in either ludic context or in competition. Using SOTG requires that every player knows the rules. Players are responsible for their behavior and for self-refereeing, which is arguably to be a useful tool for children and youth to develop a sense of community through their sport experience. This perspective may be useful to develop interventions that prepare players to be more conscientious of their own actions and help teams to improve the SOTG.

**Keywords:** *Self-regulation; Teamwork; Youth; Sportsmanship; Fair Play.*

## Drowning and reduce measures

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### ABSTRACT:

Framework: According to the World Health Organization (2014), drownings are the third leading cause of accidental death worldwide. They are estimated to be responsible for the loss of 372.000 lives each year. Goal: Provide information regarding the drowning and its causes, as well indicate some preventive measures. Methodology: Review and data collection from the World Health Organization, National Institute of Statistics of Portugal, and the Drowning Observatory. Results: Worldwide there are approximately 42 drowning deaths every hour; Drowning is one of the 10 leading causes of death for people aged 1–24 years; Globally, over half of all drowning deaths are among those aged under 25 years; Males are twice as likely to drown as female; Drowning rates in low and middle-income countries are over three times higher than in high-income countries. In Portugal, were registered: 2017: 155 deaths; 2018: 117 deaths; 2019: 119 deaths; 2020: 122 deaths. Conclusion: It's possible to reduce these numbers with actions to prevent drowning like: Install barriers for controlling access in swimming pools; Teach school-age children basic swimming, water safety and safe rescue skills; Train bystanders in safe rescue and resuscitation; Coordinate drowning prevention efforts with those of other sectors and agendas; Develop a national water safety plan.

**Keywords:** *Drowning; Deaths; Lifeguards; Water Safety.*

# Understanding the double facet of motivation on enjoyment and body image in fitness club exercisers

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## ABSTRACT:

Social networks influence the creation of stereotypes of ideal body, with a distorted view of the body image (BI). According to motivational theories, literature have not considered other cognitive constructs on analysing exercise commitment, like BI. This study aimed to examine the double facet of motivation on enjoyment and BI in health club exercisers. A total of 957 exercisers (528 female), aged between 18 and 65 years ( $M = 32.97$ ;  $SD = 11.88$ ) participated in this study. All participants had at least 6 months of regular exercise practice and exercise frequency ranged from 1 to 7 ( $M = 3.74$ ;  $SD = 1.28$ ). Participants completed a survey assessing interpersonal behaviors, basic psychological needs satisfaction and frustration, behavioral regulations for exercise and eating, enjoyment and BI. Structural equation modelling analysis was performed to test the proposed associations across study variables and the model displayed acceptable fit to the data [ $\chi^2(480) = 3922.78$ ; B-S  $p < .001$ , CFI = .912, TLI = .902, SRMR = .078, RMSEA = .068 (CI90% = .065, .070)]. The direct and indirect paths of the bright side of motivation, including perceived need-supportive behaviors, basic psychological needs satisfaction, autonomous motivation for exercise and eating showed a positive association between them and with enjoyment and BI. In contrast, the direct and indirect paths of the dark side of motivation, including perceived need-thwarting behaviors, basic psychological needs frustration and controlled motivation for exercise and eating demonstrated a positive association between them, however, negative associations with enjoyment and BI. Motivational factors have distinct implications on predicting enjoyment and BI. Individuals should perceive exercise instructors as need-supportive key figures of motivation and exercising as a pleasurable activity to achieve a better satisfaction with BI.

**Keywords:** *Interpersonal behaviors; Basis psychological needs; Behavioral regulation, Enjoyment; Body image.*

# Lipidic and glycemic profile of active older women changes after two months of detraining?

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## ABSTRACT:

The practice of physical exercise programs promotes a better quality of life and health in elderly women and can mitigate the risk factors for chronic diseases such as diabetes mellitus or hypertension, but its interruption can cause declines in the improvements caused by its practice. According to the literature, detraining is considered a period equal to or longer than two weeks, and that after only 6 weeks promotes negative effects on the health of older women. To analyze the effect of two months of detraining in active older women at the lipidic (triglycerides and total cholesterol) and glycemic profile twenty-six older women (Exercise Group, EG: 66.8±4.3 years; 158.9±8.12 cm; 68.56±8.43 kg) were subjected to a combined training program for three months followed by a two-month period of detraining and 18 women (control group, CG: 65.3±6.1 years; 161.2±6.31 cm; 66.31±5.87 kg) were subjected to five months of combined training program. Results: In the EG, after the two-month detraining period triglycerides increased by 19.55±2.3 mg/dl (11.5%;  $p<0.05$ ), glucose increased by 3.44±1.04 mg/dl (4.2%;  $p<0.05$ ), and total cholesterol increased by 9.81±2.11 mg/dl (5.2%;  $p<0.05$ ). The CG maintained all their levels. Two-month period of de-training promoted negative changes in the lipid and glycemic profile increasing the risk of chronic diseases of older women, which reinforce the need to maintain exercise during the lifetime.

**Keywords:** *Older Adults; Detraining; Multicomponent Exercise; Triglycerides; Total cholesterol.*

## Effects of two months of detraining after eight months of multicomponent exercise program in the hemodynamic profile of older women

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### ABSTRACT:

Periods of detraining are usual after exercise programs for the elderly people. The benefits obtained by exercise can be affected by these periods of detraining, and the magnitude of the changes is dependent on the length of these periods. Hypertension is a disease that affects the vast majority of the elderly and is one of the risk factors with the greatest impact on the development of cardiovascular diseases in this age group. Objective: To analyze the effect of two months of detraining on blood pressure and resting heart rate in elderly women with eight months of multicomponent training. Methods: 14 older women (EG: 69.1±3.9 years; 163.44±6.88 cm; 67.63±6.29 kg) were subjected to a combined training program for eight months followed by a two-month period of detraining and 11 women (CG: 66.12±4.6 years; 162.1±6.22 cm; 67.12 ± 6.71kg) maintained their normal lifestyle without practice of systematic exercise. Results: The multicomponent exercise program decreased blood pressure (systolic blood pressure: -8.2%,  $p<0.05$ ; diastolic blood pressure: -3.6%,  $p<0.05$ ) and resting heart rate (-11.3%,  $p<0.05$ ). The two-month detraining period resulted in increases in systolic blood pressure (4.5%;  $p<0.05$ ) and in resting heart rate (7.2%;  $p<0.05$ ). Conclusions: Multicomponent exercise promoted positive changes in the hemodynamic profile but two-month of detraining were enough to increase systolic blood pressure and resting heart rate of older women. Detraining periods of two-months should be avoided in older women.

**Keywords:** *Older Women; Detraining; Multicomponent Exercise; Blood pressure; Resting Heart Rate.*

# Analysis of the Reliability of the Method of information and assessment for walking trails (MIA\_WT)

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## ABSTRACT:

There is a need to know how to select walking trails, through the information and assessment that can be collected. This information reinforces the relevance when it is necessary to perform a proper characterization and assessment, in order to inform practitioners about the respective routes, also allowing nature sports monitors to improve and adapt the planning of their activities, avoiding dissatisfactions and accidents. The aim of this study was to analyze the reliability of the instrument, Method of Information and Assessment for Walking Trails” (MIA\_WT), through the observers’ agreement rate. Fifty observers participated in this study, women n=19 and men n=31 with a mean age of  $28.78 \pm 7.91$  years and experience level of  $4.04 \pm 0.75$  and fitness level of  $3.88 \pm 0.62$  on a Likert scale (1 to 5). The observers used the instrument “MIA\_WT” to evaluate the “PR2 Chãos-Alcobertas”, during and after its accomplishment. The Intraclass Correlation Coefficient (ICC) was used to analyze the agreement rate between expert evaluators. An excellent level of agreement was found between the observers (ICC: 0.998). Thus, through the content, the MIA\_WT proved to be a reliable instrument as a method of information and evaluation of the walking trails.

**Keywords:** *Walking Trails; Assessment Tool; Reliability.*

## **Walking routes assessment. case study "PR2 - Chãos Alcobertas", from the natural park of Serras de Aire e Candeeiros**

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### **ABSTRACT:**

The growing demand for the practice of walking routes (Pedestrianism), is a reality that deserves to be studied. In this case, the PR2 "Chãos - Alcobertas", integrated in the Natural Park of Serras de Aire and Candeeiros (NPSAC), is one of the oldest and most charismatic routes of the "Estremadura Limestone Massif", lacking an updated and innovative technical and professional assessment. Thus, from the methodological point of view, the Methods of Information and Assessment (MIA\_PP) was used, between 2020 and 2021, using 50 observers, women n=19 and men n=31 with an average age of  $28.78 \pm 7.91$  years and an experience level of  $4.04 \pm 0.75$  and a physical condition level of  $3.88 \pm 0.62$  in a Likert scale (1 to 5). Main results: i) Circular route; ii) Length of 16km; iii) Average duration of 4h; iv) Difficulty level "medium/high", considering the unevenness ( $Ac.+ = 373m$ ), slope (between 5% and 10%), perceived effort (Borg. Sc. =6,17), moderate progression (easy single tracks), external load (between 6% and 10% c.h.), vegetation type (not very dense), obstacles transposition (easy), v) Touristic interest level (10 POIs = very good); Recommended seasons: Spring and Autumn. This type of assessment makes it possible to select a route according to the target group and the objectives to be achieved.

**Keywords:** *Walking routes assessment; Difficulty level; Touristic interest level.*

# Can 8-weeks of strength training promote improvements in functional capacity and hemodynamic profile of older women with pre-hypertension?

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## ABSTRACT:

Resistance training (RT) promotes physical and psychological benefits in elderly women. Some of these benefits are increased muscle strength and ability to perform activities of daily living, and decreased blood pressure, anxiety, and isolation. Physical inactivity is one of the factors that contributes to a lower quality of life and health in older women, whether due to lack of motivation to exercise or as a result of interruptions in training programs. Objective: This study aimed to compare the effect of 8 weeks of two types of RT and 4 weeks of detraining on functional capacity and hemodynamic profile in elderly women with pre-hypertension. Methods: 38 women were divided into three groups, 1) strength endurance training (SET; n=12): 1 set of 20-25 repetitions at 6-8 RPE; 2) relative strength training (RST; n=14): 2-3 sets of 8-12 repetitions at 6-8 RPE; and 3) control group (CG; n=12). We assessed functional capacity using the Senior Fitness Test battery and assessed blood pressure. Results: The attendance rate for training sessions was 88% in SET and 91% in RST. After the eight weeks of training the tests 30 seconds chair stand up and arm curl, 8 feet up and go, 6-minute walk and lower limb flexibility improved in all experimental groups ( $p < 0.05$ ) and the CG showed no differences in any of these variables. Blood pressure did not change in any of the groups, although there was a tendency of reduction in both RT groups. With the 4-week de-training it was observed that functional capacity of both RT groups decreased in comparison with the end of the RT (30-second arm curl, 30-second chair stand up, 8-feet up and go, 6-minute walk, and lower limb flexibility,  $p < 0.05$ ) and blood pressure was unchanged. There were no differences between SET and RST before and after the 8-weeks RT program, and after 4 weeks of detraining. Conclusions: Despite the negative effects of detraining the benefits of training were maintained compared to the initial state of the older women. Different types of TR are effective to achieve improvements in functional capacity in older women.

**Keywords:** Older Women; Detraining; Resistance training; Blood pressure.



# A systematic review of the exercise effects on the cognitive abilities of older people

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## ABSTRACT:

Many experts agree that the phenomenon of an increasingly aging population fast and its negative consequences for public health are strong current evidence (Beard et al., 2016). The decline in cognitive skills (CS) stands out as a negative outcome (Freitas et al., 2012). On the other hand, it can protect against various CS declines (Lee et al., 2015). However, the true impact of long-term exercise on maintaining the different areas of CS in this population remains unknown. Objective: to investigate the effect of long-term physical exercise on different areas of CS in older adults with and without cognitive impairments, and to determine whether the evidence describes specific areas of CS that are more sensitive to the effects of exercise. Methods: The survey for the data of the present study was carried out in the PubMed, B-on, and Scielo databases. Long-term, randomized, and non-randomized controlled trial intervention studies were selected following selected criteria: i) Keywords in the title, ii) reading of the abstract; iii) reading the entire manuscript. The main descriptors used were older adults, exercise cognition, CS, and their scientifically similar terms, in English. Results: Evidence found in selected articles revealed that working memory (related to executive function) and global cognition were the most studied CS. Interest in studies that included older participants with Alzheimer's disease, Parkinson's disease, and other mild cognitive impairments also revealed an additional characteristic of the research findings. Conclusion: Although the findings do not allow us to affirm that exercise improves some cognitive abilities, they lead us to believe that more studies are needed to replicate those that already exist in the literature, in order to increase the evidence and help to prove the effectiveness of exercise in elderly people affected by diseases or syndromes that affect cognitive abilities.

**Keywords:** *Long-term physical exercise; Work memory, Alzheimer's disease, Parkinson's disease, Mild cognitive impairment.*

# Association between sleep and quality of life of college students

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## ABSTRACT:

The decrease in sleep hours and the irregularity of its pattern in university students are a reality that has been worrying the academic community and health organizations due to the repercussions that this problem has on the health and quality of life among students. Objective: Analyze the scientific production regarding the relationship between sleep and quality of life in university students. Methods: This is an integrative literature review, according to the PICO methodology (population, interest, and context), whose data collection was carried in July 2022, in the Academic Search Complete, CINAHL Plus with Full Text databases, ERIC, MedicLatina, MEDLINE with Full Text, Psychology and Behavioral Sciences Collection, PsycINFO, Scopus and Web of Sciences. The descriptors used in the research are stated in the following boolean sentence: (undergraduate students OR college students OR university students) AND (sleep\* OR sleep quality OR sleep hygiene OR sleep duration) AND (quality of life OR well-being OR well-being OR health-related quality of life OR life satisfaction or life expectancy). The selected articles were written in English, Portuguese, Spanish and French and were published during the last 10 years. Results: The analysis of the articles included in the study identified that there is a strong positive relationship between the quality of sleep and the satisfaction, well-being, and quality of life among college students. So, changes in the sleep/wake pattern can be reflected in loss of quality of life, lower life expectancy, increased risk of developing obesity and arterial hypertension, less physical exercise, attention deficit, irritability, fatigue and symptoms of anxiety and depression. The ingestion of large amounts of alcohol by university students before sleep causes changes in sleep architecture. That said, teachers and health professionals have a fundamental role in guiding strategies to promote an adequate sleep pattern, an important determinant of health.

**Keywords:** *College students; Sleep; Quality of life.*

# In-season internal training load and wellness quantification of under 15 and 17 goalkeepers

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## ABSTRACT:

There is a limited amount of research, and specially on the youth categories, regarding the training load data of the soccer goalkeepers, a field position that has a central impact on the final match outcome because their individual actions can prevent the opposing team from scoring. The aim of this study was to quantify the 2021-2022 seasonal internal load and wellness completed by under (U) 15 and 17 goalkeepers; to compare data of training sessions; and to compare U15 with U17 goalkeepers. Methods: Two U15 and two U17 goalkeepers were monitored between November and February through session rating of perceived exertion (s-RPE), average heart rate (HRavg) as internal load measures. In addition, self-reported wellness response was assessed using Hooper index which include fatigue, stress, muscle soreness and sleep quality. Considering the different training schedules and match-days (MD), only the 12 weeks with the same training schedule were analysed. These weeks included four training sessions for both categories which included MD plus two days (MD+2), MD minus four days (MD-4), MD-3 and MD-2. The results of the comparisons between U15 with U17 showed no differences for all variables (all  $p > 0.05$ ). Sleep, fatigue, and stress response presented the highest values on MD-3 and lowest on MD+2 while muscle soreness presented the highest value in MD-2 and the lowest in MD+2. S-RPE also showed highest value in MD-3 and the lowest in MD-2. Intrinsically, the higher values of HR were revealed in both MD+2 (143 bpm) and MD-2 and (142 bpm). However, from a statistical point of view, there were no differences among training sessions. This exploratory case study provides novel data about the physical load undertaken by young goalkeepers during a competitive season. Future studies should consider the different training exercise types (e.g., strength, speed, reaction, and resistance) to provide better managements load practices for coaches and their staff.

**Keywords:** Soccer training; Goalkeepers; Perceived exertion; Well-being; Heart rate.

The II International Congress - CIEQV is the consequence of the development of the center's strategic plan, which aims to increase scientific production in the field of quality of life. The communication of the science carried out configures a relevant social approach for public scientific research institutions. This congress aims above all to make available the knowledge acquired on the subject of quality of life, aiming to transfer to society and citizens the information applied to their way of life.

We consider the highlights of the congress to be the discussion at roundtables on two fracturing themes, inclusion and urbanism associated with the quality of life of citizens. The conferences are multidisciplinary, addressing topics such as children's education and sports participation, sustainable agriculture and self-care, all of them related to citizens' quality of life.

The proposed papers reflect the diverse research paradigms of this multidisciplinary and thematic center: studies on the educational contexts of youth and children; on the inclusion of people with disabilities; research focused on food products and sustainable behaviors; approaches to sports training, athlete performances, physical activity practice; exploration of research on the motor behavior of children and youth; study of sustainability in organizations; research focused on quality of life in the different stages of human life; etc.

This diverse approach demonstrates the complexity of the social phenomenon under study. Researchers search the connection between some variables and their interrelationship. In this way, the research produced gets closer to the ecological and social reality, transferring itself to human practices towards a better and healthy quality of life.

This II International Congress - CIEQV is another initiative for the challenges of research in Quality of Life.

I take this opportunity to thank the institutions that support us, the organizers of the event and the researchers who share their knowledge, from the perspective of open science and available to society.