
Editorial: contributions in biomechanics supported well-being and performance

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Biographical notes: Denis A. Coelho is a senior researcher in human factors and ergonomics with extensive research, doctoral supervision and higher education management experience. Holding a Masters in Management of Production, he earned his Mechanical Engineering Doctoral degree in 2002 focusing on Human Factors and Ergonomics in Engineering Design. His research spans working conditions from the ergonomic and psychosocial perspective, as well as the design, usability and electromyographic study of tangible interfaces. He started and edits the *International Journal of Human Factors and Ergonomics*. With core competencies in work environment analysis and ergonomic product development research, he holds a keen interest in interactions between people and technology that reside in the physical, cognitive, emotional, organisational and even cultural levels. This is supported by the broad HFE toolset that enables identifying and solving problems, from design seeds (hypotheses about what would work) to ergonomic product development and assessment methods.

José António Simões holds a PhD in Mechanical Engineering from the University of Porto. He is an Associate Professor with Aggregation at the University of Aveiro and Director of the School of Arts and Design. Scientific research has been devoted to the study of new concepts for implantable biomedical devices. He is the author or co-author of over 500 publications and 11 patents/models. He received several awards from the Portuguese Society of Orthopedics and Traumatology, including the Dr. João Manuel Espregueira Mendes and Dr. Carlos Lima awards.

Daniel A. Marinho is an Associate Professor at the Sport Sciences Department in University of Beira Interior. He graduated from University of Porto in Sport and Physical Education in 2004, Doctorate in Sport Sciences at University of Trás-os-Montes and Alto Douro in 2009 and Habilitation in Sport Sciences at UBI in 2013. His pedagogic supervision has taught 1st and 2nd cycle curricular units at UBI, UTAD, Santarém, Guarda and Castelo Branco Polytechnic Institutes. He also taught 3rd cycle curricular units at UBI, UTAD and UP. He was the President of the Department of Sport Sciences in UBI (2009–2015); Vice-Director of the Sports, Health Sciences and Human Development Research Centre (CIDESD, 2013); Director of 2nd Cycle UBI studies in Physical Education (2009–2013); Director of the Sport Sciences 3rd Cycle studies (2013). He advised 20 graduate theses, 20 master theses and ten doctorate theses, and has produced over 150 academic titles.

The contribution of biomechanics to extend the frontiers of knowledge is remarkable. This successful outcome has been obtained by excellent research conducted in interdisciplinary projects involving medicine, bioengineering, biology, automation, sport, ergonomics, rehabilitation, occupational therapy, product design and biomaterial science, among others. This contribution is evident if one considers the number of educational courses in this field, the number of national and international funded projects, the number of events focused on biomechanics promoted both by research and educational institutions, as well as in the number of published papers in high relevance peer-reviewed scientific journals.

As an interdisciplinary science, ergonomics operationalises knowledge that it shares with an enlarged set of other disciplines. Biomechanics provides an understanding of the loads and mechanics at the whole body as well as at the cellular level which are the basis of the inseparable relationship between ergonomics and biomechanics that can be translated into better safety design, better workplaces. His special issue is made up of substantially extended versions of selected papers presented at the Portuguese Biomechanics Society 8th Congress 2019 (CNB 2019) as well as articles submitted by other experts.

Offering potential benefits, automated vehicles also promote increased incidence of motion sickness. An author team from Coventry University in the UK and headed by Spencer Salter studied the potential of using bone conductive vibration stimulus as a way to increase time to nausea in automated vehicles, with significant conclusive results.

A group of authors from several Portuguese institutions, headed by Vitor Ferreira, deployed 3D motion analysis and force analysis to analyse kinematics and kinetics in both sit to stand and stand to sit tests. The focus of the article is set on unveiling the particular strategies of participants with confirmed diagnosed medial knee osteoarthritis.

Another Portuguese team, with Edgar Ribeiro on the lead, analysed the association between intrinsic and functional stiffness as well as antagonist co-activation in the ankle joint of post stroke patients. The analysis is based on data from a set of eight participants, collected during upright standing, gait initiation and stand to sit.