

Opening keynote lecture by Professor Jim Richards

Advances in the Assessment of Quality of Movement and Motor Control in Neurological and Musculoskeletal Conditions

This talk will bring together both previously published work and some of our latest unpublished work within the Allied Health Research unit at the University of Central Lancashire, UK. This talk will explore the development of the assessment of quality of movement from early findings in 2003, which highlighted the potential for using angular velocity as a possible measure of quality of movement in Stroke survivors using 2D video, through to the use of Inertial Measurement Units with the integrated measurement of muscle activity in 2020 using EMG. Further developments have now revealed the potential of not only considering the quality of movement and standard analysis of the level of muscle activity, but also the changes in the behaviour of individual motor control signals from the Central Nervous System or Motor Unit Action Potential Trains into the muscles, which is now providing new insights into the link between angular velocity and motor control at the neuromuscular level.

Biography of Professor Jim Richards

Professor Richards is the Director of Research for the Faculty of Allied Health and Wellbeing and Research Lead for the Allied Health Research unit. Professor Richards' research includes the clinical application of biomechanics, the development of new assessment tools for chronic disease, the conservative and surgical management of orthopaedic and neurological conditions, and the development of evidence based approaches for improving clinical management and rehabilitation. The focus of Professor Richards' work is to encourage inter-professional research and to develop direct parallels with research to the 'real world' of allied health work.

Professor Richards has authored over 180 peer reviewed journal papers which have been cited over 5,000 times, and written and edited a number of textbooks including Biomechanics in Clinic and Research (2008), the 5th edition of Whittle's Gait Analysis (2012) and the Comprehensive Guide to Clinical Biomechanics (2018). He has also contributed to Tidy's Physiotherapy (2003, 2008, 2012), the 10th edition of Mercer's Textbook of Orthopaedics and Trauma (2012), Experimental Research Methods: A Guidebook for Studies in Trauma Care (2015), Patellofemoral Pain: A Clinical Guide (2017), Forensic Gait Analysis: Principles and Practice (2020), and the Guide to Sports Physiology and Injury (2020).

