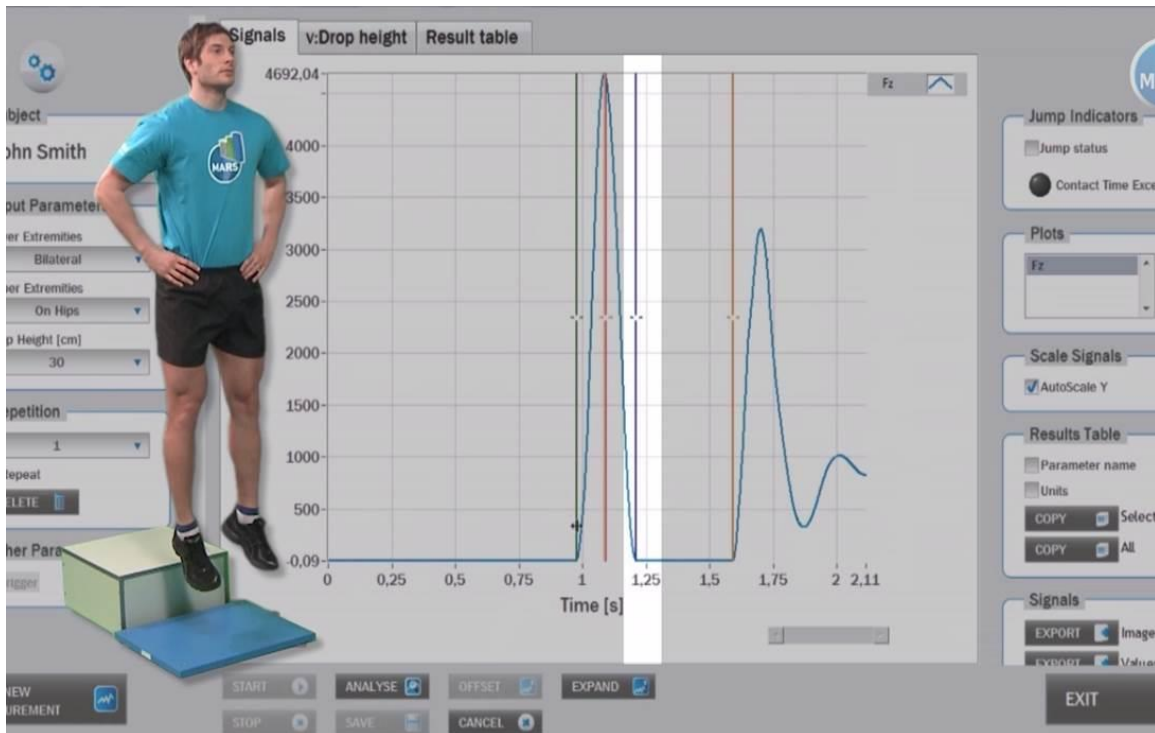


Ground reaction force measurements in sports, medicine, science and practice using “mars” software



Abstract

Kistler MARS by S2P is innovative, comprehensive and user-friendly software for the complete analysis of ground reaction force measurements acting on human body. It supports routine diagnostics, research and educational work in biomechanics, sports performance analysis, motor control behaviour, rehabilitation medicine and other related fields. Kistler MARS by S2P supports 20 different measurement and analysis modules. These modules cover measurements of static (body sway), and dynamic (Tracking Shapes, Limits of Stability, Landing, etc.) balance, locomotion and body transfer (Step Analysis, Forward Lunge, etc.), fast alternating movements (Tapping, Stamping, etc.), strength and power (all vertical and horizontal jumps, etc.) as well as free ground reaction force acquisition. Besides the standard parameters, all measurement modules enable calculation of many other evidence-based parameters to provide most detailed information instantly. Based on the customer's needs, Kistler MARS by S2P is available as partial MARS Strength and Power, Partial MARS Balance and Stability and as Full MARS – the latter combining functionalities of both partial versions. Regardless of the version, Kistler MARS enables easy-to-use and intuitive management, measurements, analysis and reporting functions that provide additional structuring of the data. The analysis and export of data are enabled in different formats (raw signal, signal graph and parameters values) tailoring the reports to the users specific needs. All functions of the software are well supported with extensive help information including how-to examples, online video trainings on the MARS website and online updates of the software.

Workshop: Bringing science to practice on the field of ground reaction force measurements by Kistler MARS by S2P software

Ground reaction force (GRF) is the moving force of human locomotion (jumping, running, changing direction, etc.) and also the relevant variable that needs to be controlled in order to ensure postural balance and stability. For decades GRF measurements, using force plates, have been a fundamental part of human biomechanical labs. Applied research in the field of sport performance, injury prevention and rehabilitation, as well as in other related fields is continuously advancing the body of knowledge that is relevant for high quality GRF measurements. In hand with that, innovation in technical development resulted in the GRF systems suitable for a broad use in sports and clinical environments. Together with a user friendly measurement, analysis and reporting software this top-end technology becomes an indispensable diagnostic tool for evidence based sports performance, prevention and rehabilitation practice. Reasoning of different groups of the GRF tests will be presented. Welcome!



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His background is in physical therapy and sport science which he upgraded with the doctoral and post-doc projects on the fields of motor control and motor behavior using primarily electrophysiological and biomechanical diagnostic approaches. His primary research interests include balance, sensory-motor integration processes, kinaesthesia, and inter-muscular coordination. Within these areas he is continuously active also in the field of methodological and technical innovations. Most intensely he has been involved in the research and development activities related to balance and fall prevention and also alterations of sensory-motor integration processing during different acute and chronic injuries/interventions. For several years he is a science-to-practice consultant for strength training, conditioning, prevention and rehabilitation at National Teams (Karate, Handball, Basketball, and Tennis National Associations).