

Force plate measurements in prevention and rehabilitation of musculoskeletal injuries

Workshop by Kistler Biomechanics Team & Nejc Sarabon, S2P

When? Wednesday, 6th of July / 10.30am – noon / Room L8

Where? Room L8

The live demo presentation will cover three main topics in which force plate measurements support decision making processes:

- return to play after lower extremity traumatic injuries
- postural symmetries as the base of functional movement, and
- trunk stability and low back pain.

Injuries of knee and ankle are most common among traumatic sports injuries. Supinatory ankle sprain and anterior cruciate ligament tear represent a vast part among these injuries showing a relatively high injury recurrence rate. In line with this, it is important to use objective criteria regarding return-to-play. Biomechanical analysis of basic postures/movement is an important element of such decision making.

Postural a-symmetries can decrease motor performance and increase a chance for an injury. Therefore, objective measures of lateral (a)symmetries – such as weight bearing during parallel stance and squat, single leg quiet stance or landing – are useful in guiding training and therapy programmes.

Active (i.e. neuromuscular) component of stability in the lumbo-pelvic region seems to be an important base for a safe and efficient motor function of the trunk. These automatic sensory-motor actions of the trunk have been tested in many different ways, majority of them being time-consuming, requiring complex/expensive measurement equipment and high level of expertise. During recent years centre-of-pressure sway while sitting on an unstable surface has been suggested as an alternative to overcome the listed drawbacks and to bring the objective trunk stability testing to the science-based clinical practice.

Nejc Sarabon – short bio

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Assoc. Prof. Nejc Sarabon, PhD, has his background 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

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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. He also has extensive experience as a physical conditioning coach and a science-to-practice consultant for strength/power training, conditioning, prevention and rehabilitation at National Teams (Karate, Handball, Basketball, and Tennis National Associations).