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ABSTRACTS

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01

Standing on your two feet: How skin can help with balance and mobility

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There are four distinct cutaneous mechanoreceptors that provide tactile input from the plantar-surface of the foot. The unique patterns of vibration, slip, pressure and stretch provide valuable information regarding the interface of the foot with the environment. This presentation will address the feasibility of foot sole skin to contribute to gait and balance control; with particular attention paid to the distribution and density of skin mechanoreceptors across the foot sole. Here Dr. Bent will talk about the potential for receptors in the skin to respond to input from the environment, and evoke changes in patterns of muscle activity; for example onset and amplitude of lower limb muscles during gait. As such there are implications for rehabilitation advancements such as insoles, orthotics and vibrating devices, whereby skin activation can influence gait outcomes. Importantly, the physical location of mechanoreceptors across the foot sole, and the physical characteristics of the skin (hardness, thickness) have implications on activation of the mechanoreceptors, their perceptual threshold and ultimately the success of clinical testing techniques. The use of microneurography in parallel with other techniques weaves together the link between standard clinical measures of tactile and vibration thresholds and actual cutaneous afferent firing thresholds. Dr Bent will aim to convince the audience that activation of these foot sole mechanoreceptors really can play a role in whole body movement and control.

Keywords Afferent firing; Foot sole skin; Mechanics; Receptor location

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02

Analyse multimodale des relations entre la morphologie et la fonction chez le coureur national de 10 000 mètres sur piste en condition écologique

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Bien que la course à pied en compétition soit une activité physique largement étudiée dans les champs disciplinaires tels que la