

Non-sagittal movements of shank and foot during the swing phase of gait

Peer-reviewed author version

VAN ZWIETEN, Koos Jaap; NARAIN, Faridi; LAMUR, Kenneth S.; KOSTEN, Lauren; DE MUNTER, Stephanie; ZOUBOVA, Irina A. & SCHMIDT, Klaus (2013) Non-sagittal movements of shank and foot during the swing phase of gait. In: De Beuckelaer, Ann, PhD, Managing Director (Ed.). Abstracts and Posters - KNOWLEDGE FOR GROWTH - FlandersBio's annual life science convention, p. 1-1.

Handle: <http://hdl.handle.net/1942/15299>



Abstracts

The abstracts on this page will be presented as a poster at Knowledge for Growth 2013.

RheumaKit, a new early diagnostic tool for patients with arthritis.

Thibault Helleputte (1,2) Daniel Hernandez-Lobato (3) Pierre Dupont (1,2) Bernard Lauwerys (1)

(1) *Université catholique de Louvain* (2) *DNAlytics* (3) *Universidad Autonoma de Madrid*

Presenting author: Thibault Helleputte, CEO, DNAlytics

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Non-sagittal movements of shank and foot during the swing phase of gait

Koos Jaap van Zwieten (1), Faridi H. M. Narain (2), Kenneth S. Lamur (2), Lauren Kosten (1), Stephanie De Munter (1), Irina A. Zoubova (3), Klaus P. Schmidt (1)

University of Hasselt, Biomed Research Institute, Functional Morphology Group, Diepenbeek, Belgium (1), *Anton de Kom University of Suriname, Medisch Wetenschappelijk Instituut, Department of Anatomy, Paramaribo, Suriname* (2), *St. Petersburg State Polytechnical University, Department of Biomechanics and Health Sciences, St. Petersburg, Russia* (3)

Presenting author: Koos Jaap van Zwieten, Professor of Anatomy, MD PhD, University of Hasselt, BioMed Institute, Functional Morphology

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Foot movements in metatherians may be analyzed in order to unravel eutherian bipedal gait. Historical footage shows thylacine feet positioned horizontally in sway. For a clearer image, we therefore analyzed archived live videotapes of walking wombats. From take-off, the lateral side of the wombat foot stays continuously lifted, causing throughout everted foot positions during sway. In the opossum, biomechanical guidance by the cardan-like ankle joint transmits shank axial rotation to foot-eversion or foot-inversion (1). Only since recently, quantitative measurements in primates e.g. man, allow extrapolating such data to bipedal gait. After take-off, just a short distinct foot eversion helps to clear the human foot from the surface, mainly during the onset of sway (2). Very recently, sophisticated technology captured foot eversion in swing just prior to touch-down in a carnivore running at full speed (3). While doing so, this eutherian quadruped shows full toe-abduction simultaneously with full toe-extension. This phenomenon might be universal, as it was described in metatherians earlier (4). References : 1. Narain, F. H. M., van Zwieten, K. J., Gervois, P., Lippens, P. L., Reyskens, A., Colla, P., Palmers, Y., Schmidt, K. P., Vandersteen, M., Biesmans, S., Robeyns, I., Op 't Eijnde, B., Zinkovsky, A. V., Varzin, S. A., Lamur, K. S. (2009) Human foot inversion prior to toe-off: an analysis by means of functional morphology, and comparative anatomical observation. *Journal of Vibroengineering*, 11 (3), 530-535. 2. Legault-Moore, D., Chester, V. L., de Vries, G. (2012) Multisegment foot kinematics during walking in younger and older adults. *Journal of Clinical Medicine Research*, 4 (4), 259-266. 3. Hubbard, K., Wilson, G. et al. (2012) Video : Filming the World's Fastest Runner. *National Geographic*, November Issue. 4. van Zwieten, K. J., Lippens, P. L., Honinckx, M. (1991) Gripping mechanism in Didelphis includes prehensive patterns. *Belgian Journal of Zoology*, 121, S1, 49-50.

Circulating adipokines in dry dairy cows with different body condition score

Jenne De Koster (1) and Geert Opsomer (1)

Faculty of veterinary medicine Department of reproduction, obstetrics and herd health Ghent University Belgium (1)