

November 6, 2023

EM282: WEBINAR: Biomechanical Requirements for Functional Movement Efficiency: understanding human locomotion



ANDREIA SOUSA

Prof, Pt, M.Sc, Ph.D

Human movement is the result of a complex interaction of muscle forces, joint movements and neuromotor commands. The interaction between muscle activity and whole body mechanics is extremely variable and complex to allow direct control without the mediation of a kinematic representation. Neural circuits can somehow support the specific movement of the limbs and give rise to appropriate, subordinate and flexible muscle synergies to adapt to the real mechanical constraints.

The main function of locomotion muscles is to generate and absorb energy, but this function is largely ignored in neurophysiological research. The body has the ability to transfer energy between segments through joint centers and can store and recover energy in the passive resilience of tissues, tendons and muscles. It has been estimated that during walking, total energy consumption (of all body segments during the gait cycle) is determined by active muscle generation and absorption only for 33%, while the remaining 67% is more connected to passive transfers of energy between the various segments. In fact, the central nervous system has specialized in creating motor patterns to conserve much of the energy generated in the previous phases of the gait cycle.

The purpose of this webinar is to explore how evidence related to mechanical and metabolic energy expenditure during locomotion can be used to monitor the ability of the CNS to exploit energy conservation mechanisms to achieve more efficient movement and functional outcomes.



100 Seats



€50.00



3 Hours



3 ECM

INTENDED FOR

Doctors,
Physiotherapists,
Occupational Therapists,
Sport Scientists, Students

PAYMENTS

Balance €50.00 within 7
days from the
registration

Total: €50.00

CALENDAR

30 October 2023 from
06.00 PM to 09.00 PM
(Rome)

LANGUAGE

English with Italian
consecutive translation

Pay attention!

The Webinar is Free for participants of course: **EM283: IBITA Advanced Course - Overview on the re-education of locomotion: how each body segment contributes to the realization of efficient gait**

SCHEDULE

SCHEDULE:

18.00 - 18.30 Introduction of students and presentation of the course/speaker
18.30-19.30: Mechanical, metabolic and efficient movement energy during locomotion
19.30-20.30: Biomechanical elements necessary for efficient locomotion
20.30-21.00: Questions, discussion and conclusions