Experimental Workshop: Embodying Human Biomechanics Through Mental Imagery

Abraham Amit[1]

[1] Department of Physical Therapy, Ariel University, Israel amitab@ariel.ac.il

Abstract

Mental imagery (MI) is the cognitive process of creating any experience in the mind. Specifically, MI of motor acts (aka 'motor imagery') has been shown to benefit motor (e.g., range-of-motion, power) and non-motor (e.g., imagery ability, memory, body schema) aspects of human performance. Such beneficial effects have been demonstrated in a variety of populations, spanning dancers, athletes and individuals with neurodegenerative conditions. Further, MI supports learning of novel motor and non-motor skills. However, it is not fully understood to date what is needed for MI and embodiment to "walk together".

The concept of biomechanics playing a role in embodiment is a relatively novel concept with only limited scientific support to date. In this experimental workshop, I propose dynamic neurocognitive imagery (DNI) as an approach to support embodiment. DNI is a codified imagery-based movement retraining approach for enhancing motor and cognitive functions. Do so, DNI focuses on body structure and function as an underpinning component for embodiment. For example, DNI uses MI and movement to explain and embody center of mass, the key concept in physics and biomechanics.

In this experimental workshop, participants will explore DNI as a pedagogical tool for embodying center of mass, with the goal of enhancing biomechanics and body schema. Doing so, participants will experience a series of DNI exercises. By the end of this workshop, participants will build up ways to image and embody their own center of mass, thus enhancing their body schema and life. (Well, no guarantee for the latter…).

Dr. Amit Abraham (Ph.D., MAPhty, B.P.T) is a musculoskeletal physical therapist specializing in mental imagery for dancers, gymnasts, and individuals with Parkinson disease. Dr. Abraham is a faculty member (Tenure track) in the Department of Physical Therapy, School of Health Sciences, Ariel University (Israel), where he directs the Mental Imagery & Human Embodied Potential Lab. Research in Dr. Abraham's lab focuses on the role of mental imagery in human motor and cognitive performance. Specifically, Dr. Abraham studies neurocognitive and neurophysiological mechanisms of effect underpinning mental imagery. Doing so, his research team develops mental imagery training and rehabilitation protocols for various populations, including dancers, gymnasts, children with attention deficit hyperactivity disorders, and amputees. Dr. Abraham holds a bachelor's Degree in physical therapy from Tel-Aviv University (Israel), a master's Degree in Musculoskeletal Physical Therapy from The University of Queensland (Australia), and a Ph.D. in physical therapy from the University of Haifa (Israel). He completed his postdoc at Emory University School of Medicine (Atlanta, USA).