

Enhancing Exploration: Martial Arts & Metastability

An ecological dynamics approach to skill acquisition promotes opportunities for athletes to explore and adapt to the sporting environment. Exploration promotes a shift away from a more traditional adherence to a movement model of how a skill should be performed toward a search for functional solutions to the appropriate problem (Button, Seifert, Chow, Araújo & Davids, 2020). Therefore, emphasising exploration is not directing athletes away from stable solutions but an encouragement of the search for such solutions. Metastability is related to a behavioural state where the information does not provide a place where the stable coordination of an action exists, but an attraction to a preferred pattern still exists. This was referred to by Kelso et al., (2007) as “attractiveness with no attractor”. Research in boxing by Hristovski et al., (2006) scaled the arm length of boxers to distances from a punching bag. At closer distances boxers preferred uppercuts and hooks, while at further distances they preferred jabs. The metastable region (mid-range) however, led to a significant increase in creativity and exploration of punching solutions.

In this practical session we are going to delve into how we can help our athletes explore, with an emphasis on stable and metastable regions for the development of novel and creative striking solutions to combat sport problems. We will introduce the concept of metastability throughout the warm-up / physical preparation phase. Following this we will explore the use of exploration of the perceptual motor landscape. This will be viewed from a youth development perspective which integrates fundamental movement skills, and through to the use of metastability in training for a competition setting, where the emphasis will be more on high performing athletes. This can be achieved through the manipulation of constraints in a variety of combat approaches.

MSAI

Movement & Skill Acquisition Ireland (MSAI) is comprised of Edward Coughlan, Phil Kearney, Oliver Logan, and Alan Dunton. MSAI. As a group we are passionate about connecting coaches, practitioners, and academics on topics such as skill acquisition, coaching science, and youth development. In 2018 we held our inaugural conference in Ireland, which was followed by three webinar series on “The coach-athlete relationship”, “Women who changed the discussion”, and “Skill acquisition in different domains”. Our intention in the near future is to return to face-to-face conferences surrounding skill acquisition and coaching science.