

# How Ecological Dynamics underpins athlete development and performance preparation in sport

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This is an exciting era for sports practitioners (e.g., coaches, sport scientists, performance analysts, trainers and other sports staff) and applied scientists seeking to develop ‘athletes of the future’ and prepare ‘athletes of the present’ for competitive performance. Contemporary models of sport pedagogy, such as *Nonlinear Pedagogy* and the *Athletic Skills Model*, are changing the way practitioners support interactions of athletes and teams with competitive performance and practice environments. The utility of these models is predicated on experiential knowledge of elite practitioners and theoretical concepts in ecological dynamics to underpin skill acquisition, practice and training designs, performance analysis and preparation, and talent development.

This presentation overviews how current conceptualisation in ecological dynamics is underpinning the work of practitioners in physical education and sport can be underpinned by contemporary theoretical modelling, knowledge generation in practice, and technology deployment.

What are some key implications of applying these contemporary models of sport pedagogy?:  
(i) viewed at an ecological level of analysis, radical changes are signalled for the role of practitioners moving from *instructors* prescribing how athletes and teams can repeat and rehearse pre-planned performance templates to *learning designers* working in integrated support teams to facilitate emergence of productive, synergy-forming relationships between self-organising athletes and teams in sports competition; (ii) innovative ideas in ecological dynamics can enhance the adaptive self-regulating tendencies of athletes in competitive performance landscapes of affordances; (iii), an ecological dynamics rationale signals a need for a nuanced, re-balanced focus between specificity of training and the enrichment of athlete cognitions, perception and actions; and (iv), key principles ecological dynamics can be used to enhance health and wellbeing and maintain physical literacy of children and elderly adults as they engage in physical activities throughout the lifespan.