

Task 1...

How many practitioner, scientists and coach roles can you name within your/a sporting organisation?

Task 2...

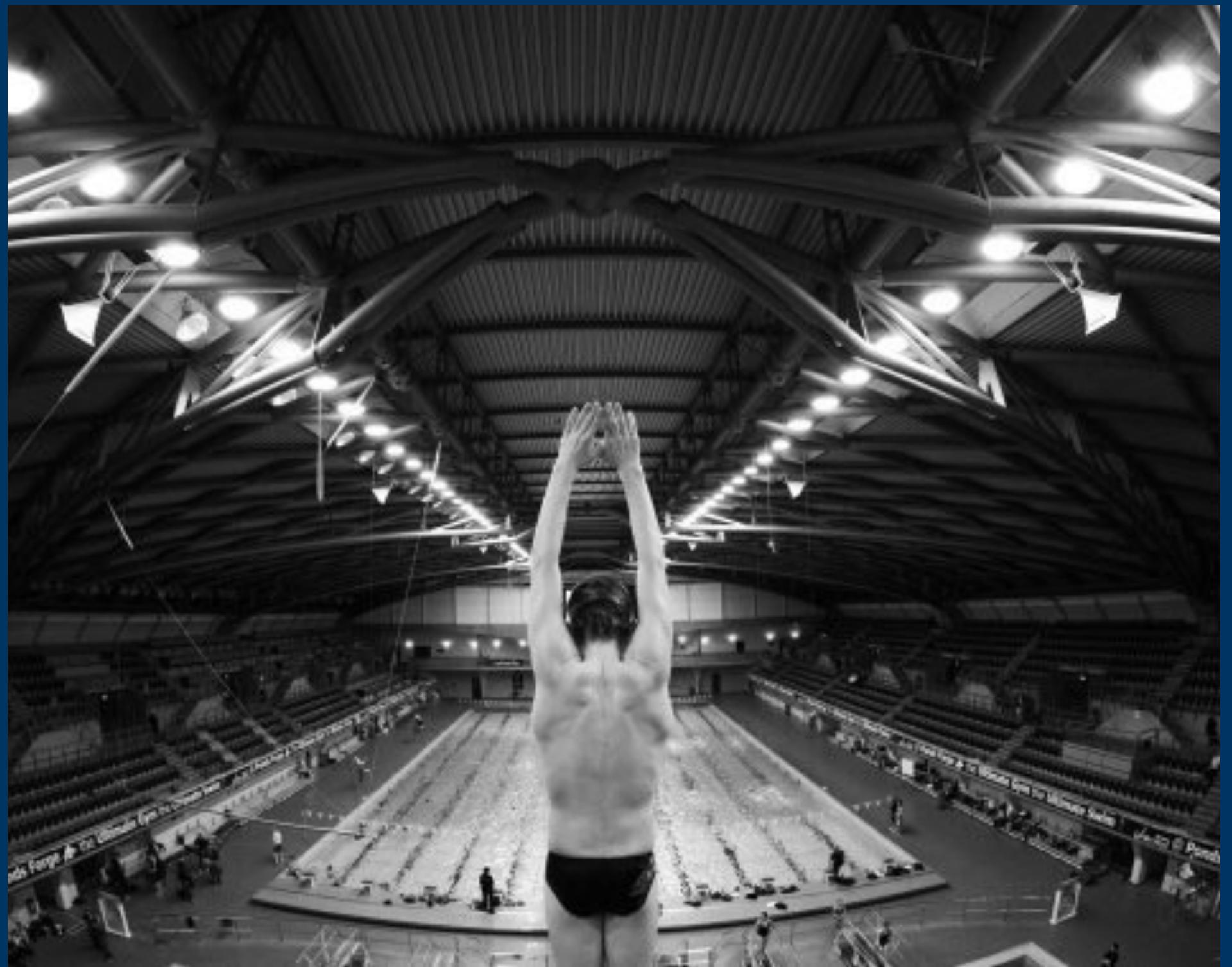
What is your definition of a Multi-, Inter-, and transdisciplinary team?



A Department of Methodology

A re-conceptualisation to integration

Sam Hydes



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Learning Objectives

Part 1

- **To introduce and understand what a Department of Methodology (DoM) is...**
- **To introduce multi-, inter-, and transdisciplinary practice within sporting organisations**
- **Provide clarity on what current issues there are within a sports organisation, with respect to integration & athlete development**
- **Discuss possible impact adopting a DoM could have**
- **Identify what practice tasks currently look like**
- **To understand how Ecological Dynamics shapes an operational model for practitioners**

Part 2

- **Identify some potential collaborations within sports organisations & solve some performance problems**

What is a Department of Methodology?

A Department of Methodology (DoM) is a *transdisciplinary* group of scientists, practitioners, coaches, and athletes that aims to:

- ▶ Coordinate activity through shared principles and language
- ▶ Effectively communicate coherent ideas
- ▶ Collaboratively design practice landscapes rich in information (i.e., visual, acoustic, proprioceptive, and haptic) and guide emergence of multi-dimensional behaviours in athlete performance.

Who makes up the backroom team?



Multidisciplinary, Interdisciplinary & Transdisciplinary Practice

Multidisciplinary



“Mingle but no intention to integrate”

Interdisciplinary



“Collaboration but little to varied integration”

transdisciplinary



“Co-create shared goals, common language, problem-focused, a complex systems approach”



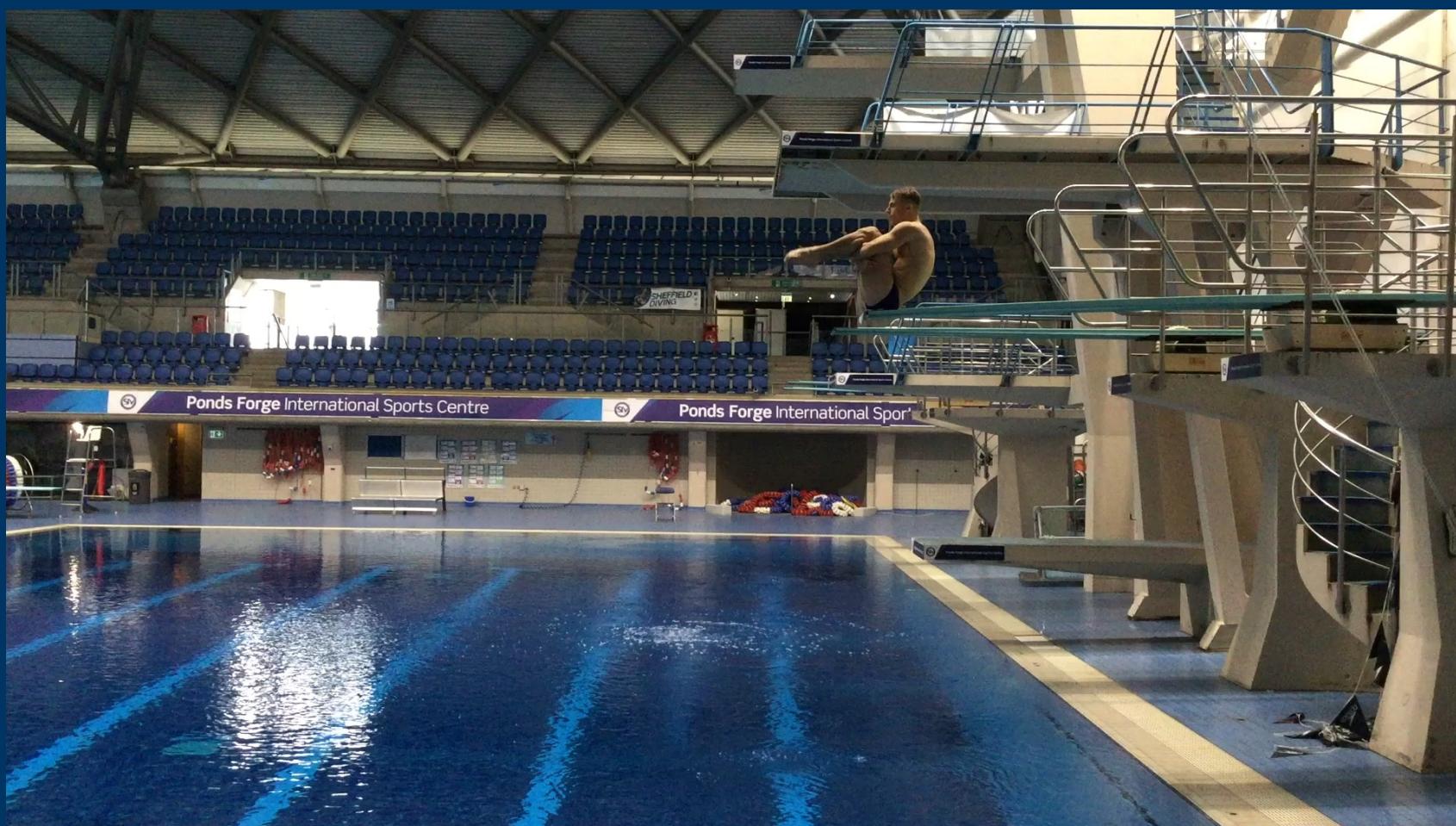
Practical Examples...

Diver landing too far out

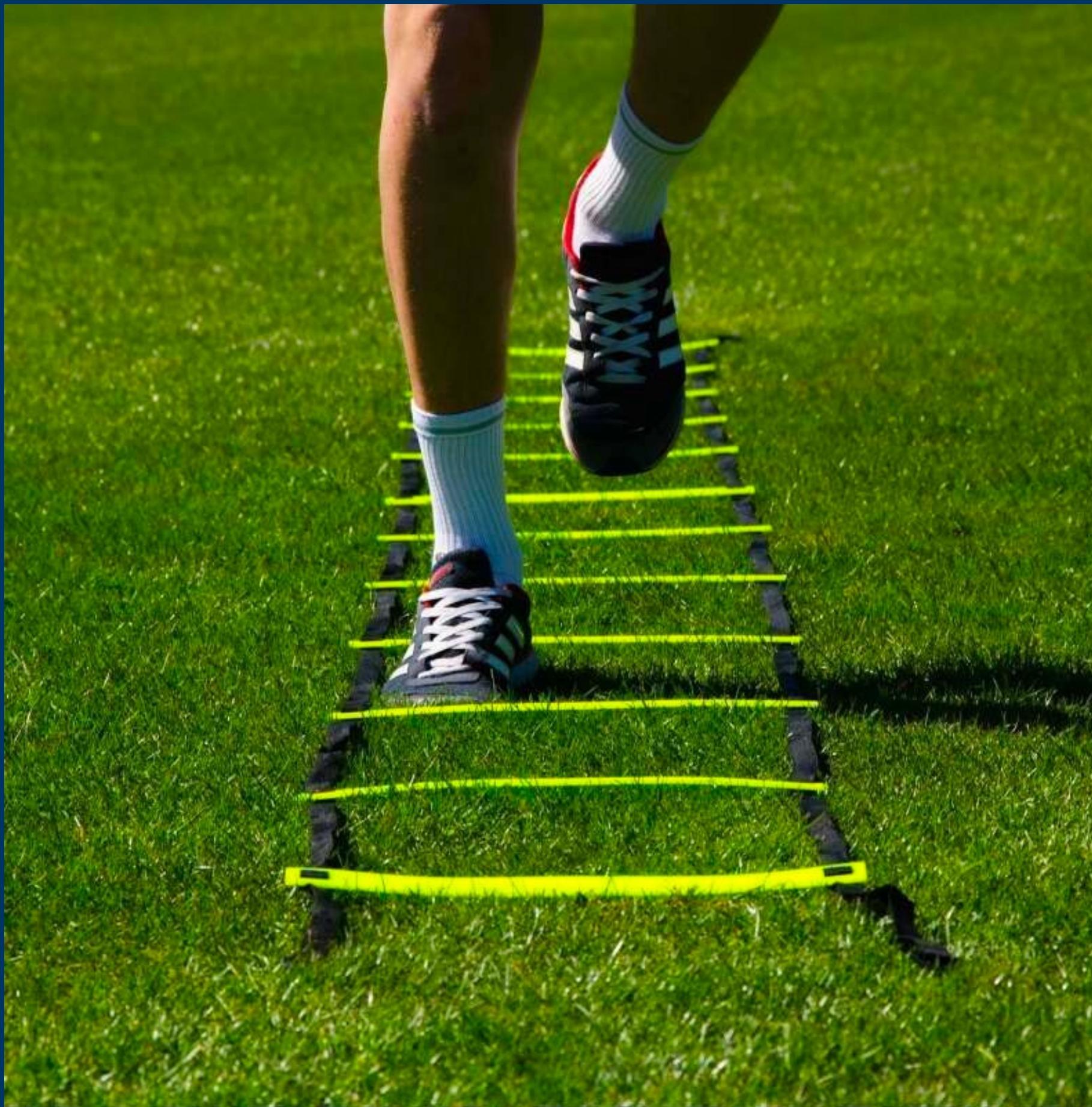


Practical Examples...

Diver landing too far out



The Agility Ladder...



“Human beings are very good at creating categories but we are also good at becoming trapped in them and we trap others as well as ourselves”

Some possible problems / limitations...

- ▶ Disciplinary expertise is very important and valuable, however this can lead to siloed thinking and climate collaboration with no integration
- ▶ Reductionism. There is a traditional approach to inquiry and this is to reduce to its simplest parts, compartmentalise, split up into more manageable parts. The issue is that this partial view is conflated to represent functioning of the whole.
- ▶ Work in own little areas
- ▶ “An illusion of integration” Otte et al., (2020)
- ▶ There is this impression that people work together but do they and how can we approach athlete preparation and performance through an alternative lens?

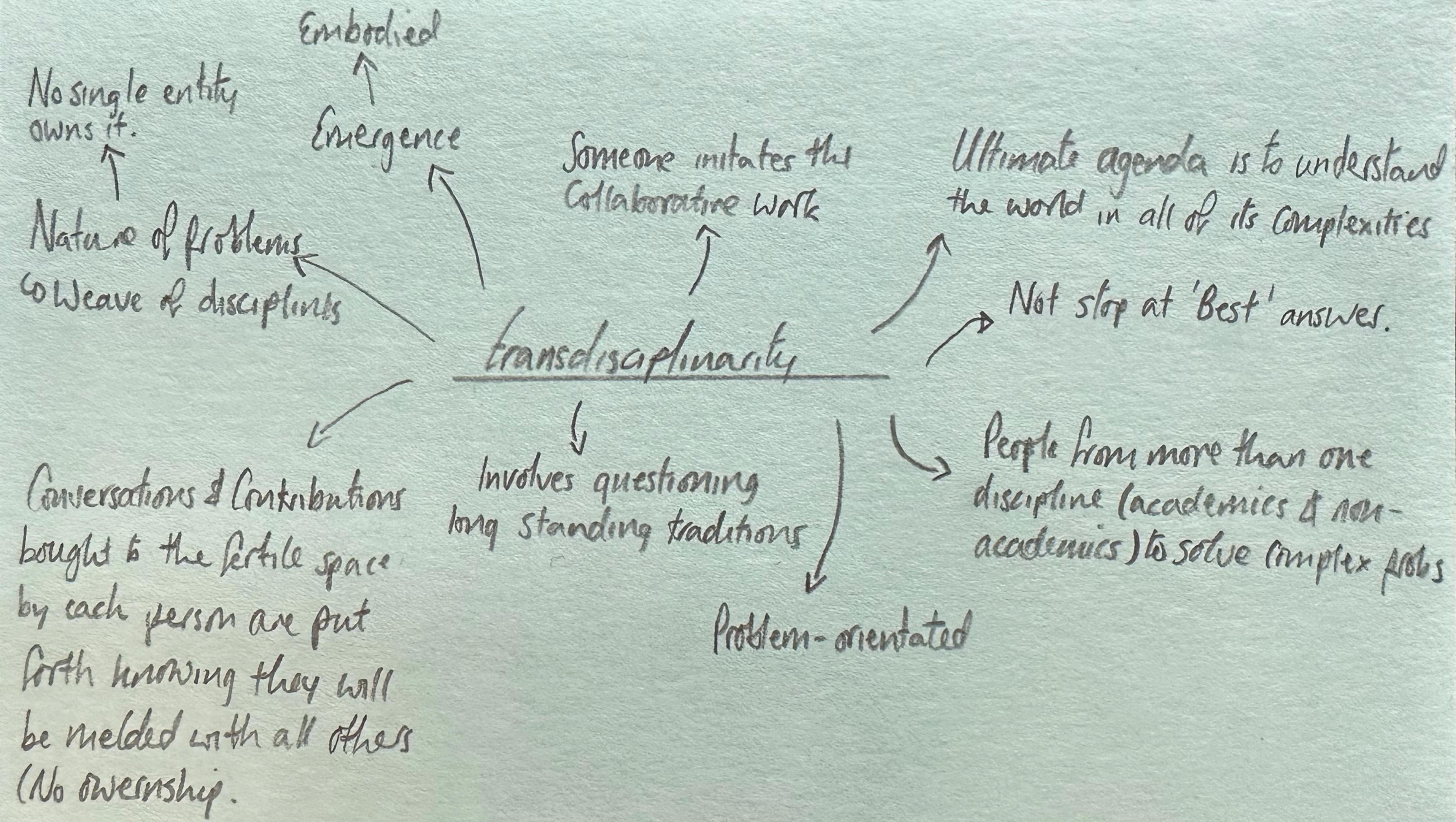
An Alternative View...

A Department of
Methodology

What is a Department of Methodology?

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Practical Examples...

Divers going too far out - Constraints Based Approach



“Agility is a complex quality that involves the coupling of perceptual information to guide actions and vice versa; and not simply the execution of a predetermined movement”

Merging Athletic Development With Skill Acquisition: Developing Agility Using an Ecological Dynamics Approach

Jordan Cassidy, MSc,¹ Warren Young, PhD,² Adam Gorman, PhD,³ and Vince Kelly, PhD⁴

¹School of Exercise and Nutrition Sciences at Queensland University of Technology, Brisbane, Australia; ²School of Science, Psychology and Sport at Federation University Australia, Ballarat, Australia; ³School of Exercise and Nutrition Sciences, Queensland University of Technology, Brisbane, Australia; and ⁴School of Exercise and Nutrition Sciences at Queensland University of Technology, Brisbane, Australia

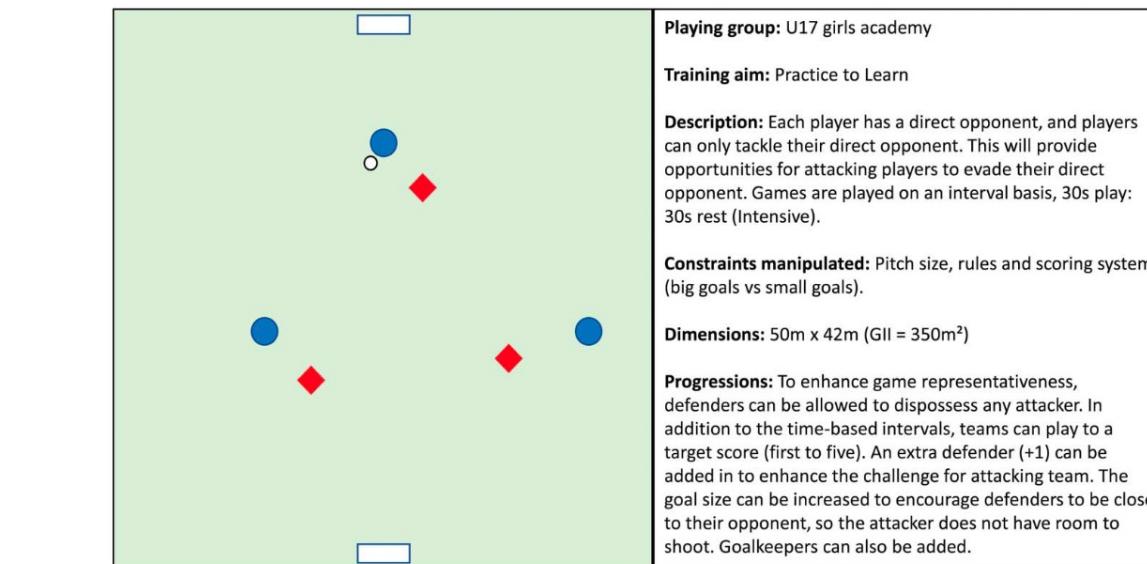


Figure 3. Soccer agility 3v3 small-sided game.

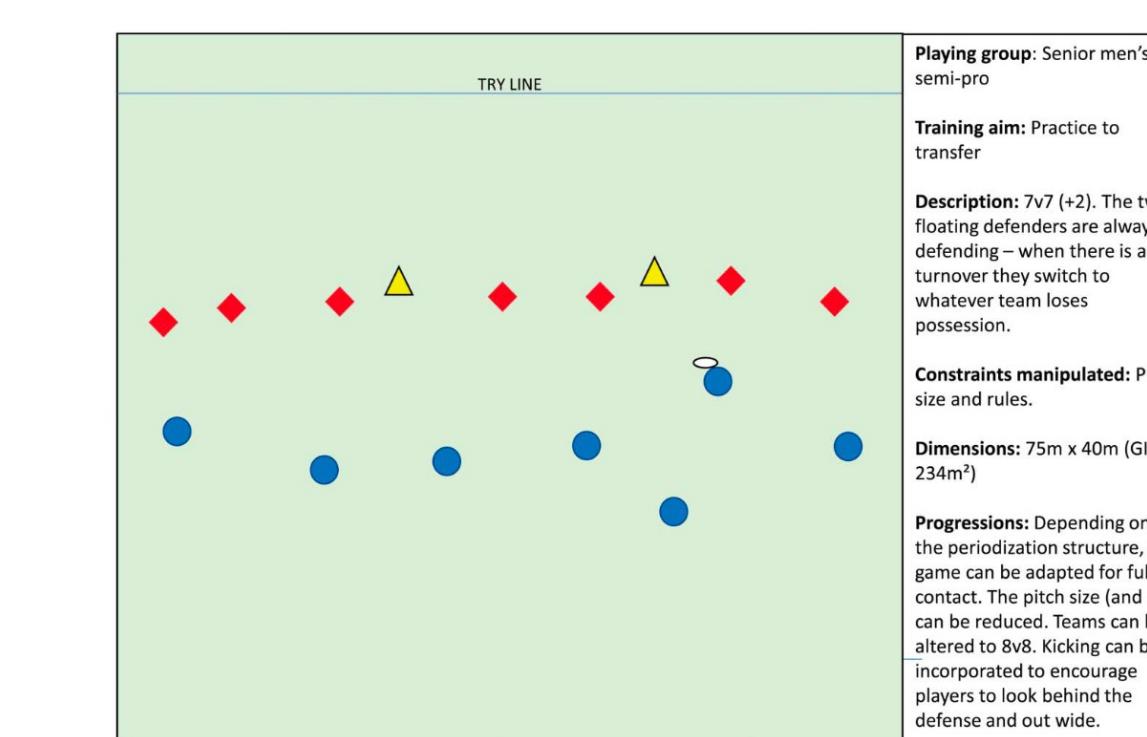


Figure 4. Rugby agility small-sided game example.

Key Concepts

ATHLETE-ENVIRONMENT MUTUALITY

- ▶ Affordances - Opportunities for action (Gibson 1979)
- ▶ “We perceive to perceive in order to move, but we also move in order to perceive (Gibson 1979, p.229)



Key Concepts

COMPLEX ADAPTIVE SYSTEM - AN INTEGRATED UNIT

'Context is important'

- As you saw above, context is important, transdisciplinary teams can more effectively support athletes to perceive specifying information sources to select affordances available to regulate appropriate actions as dynamic performance contexts change

Key Concepts

ATHLETES AS NON-LINEAR DYNAMICAL SYSTEMS

Non-proportionality & non-linearity

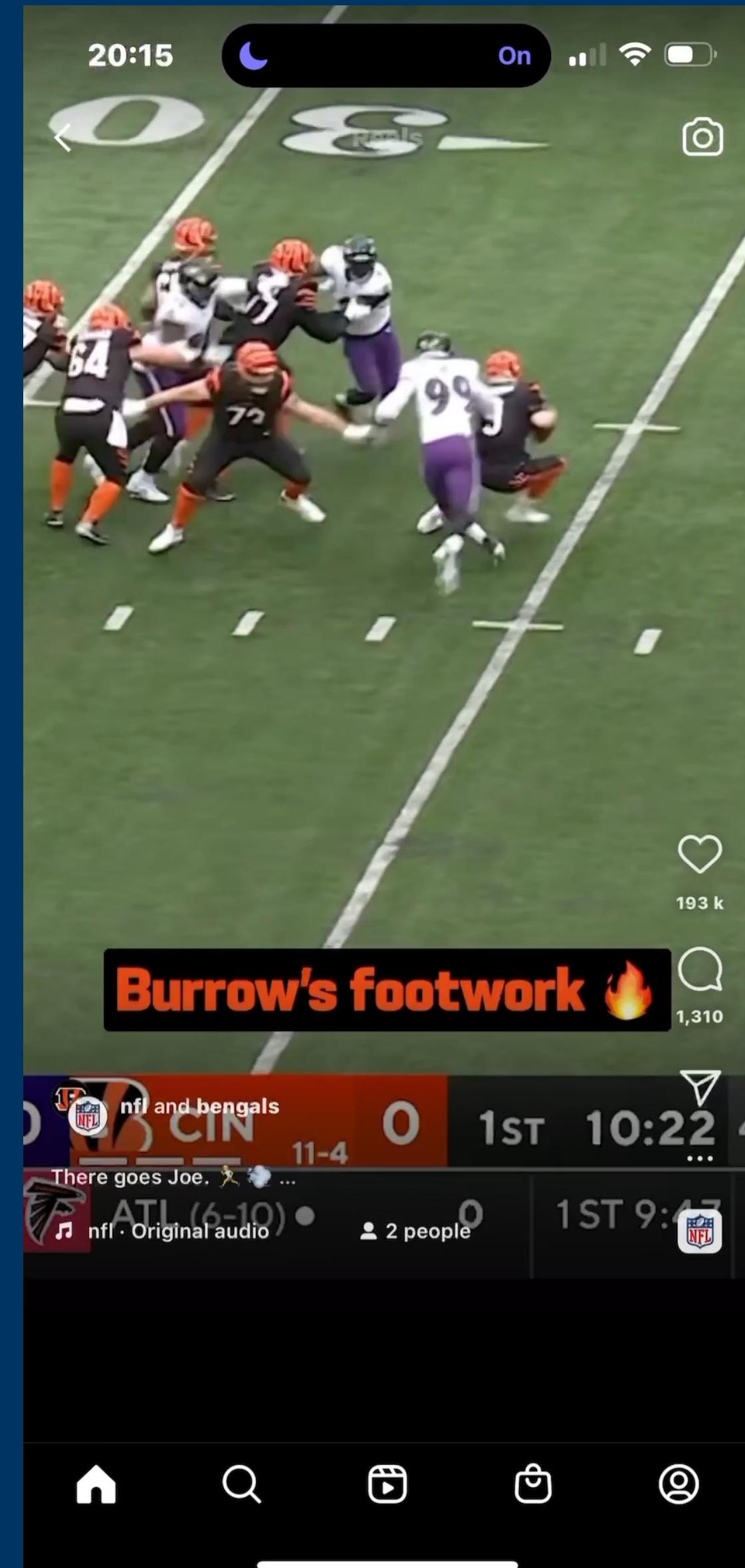
- Non-proportionality refers to hours spent in learning environment doesn't lead to identical leaps of improvement. Rapid jumps in learning can emerge from small periods of practice
- Non-linearity - there is a misconception learners acquire functional movements at a steady state

Key Concepts

REPRESENTATIVE LEARNING DESIGN

Representative learning design (Egon Brunswick 1955)

- ▶ Representative learning design emphasises the importance of skill transfer between practice environment and performance environment. Informational constraints sampled from competition are carefully designed into practice and training to support learning

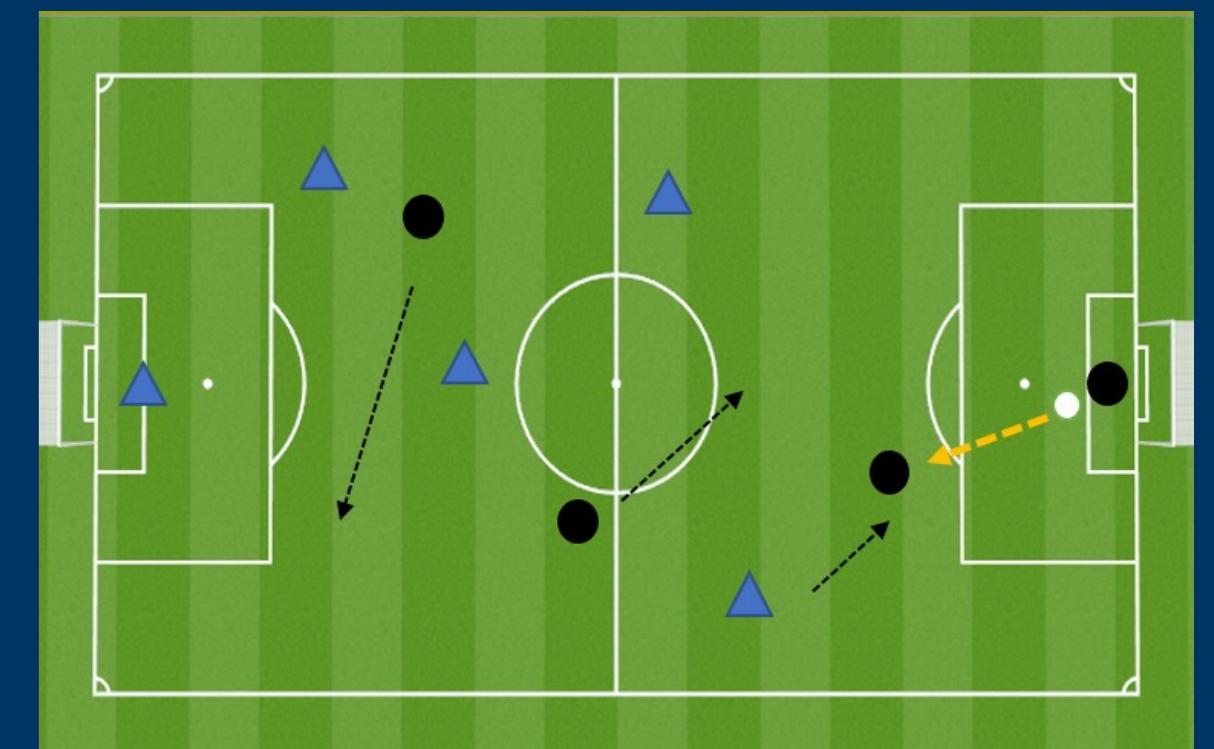
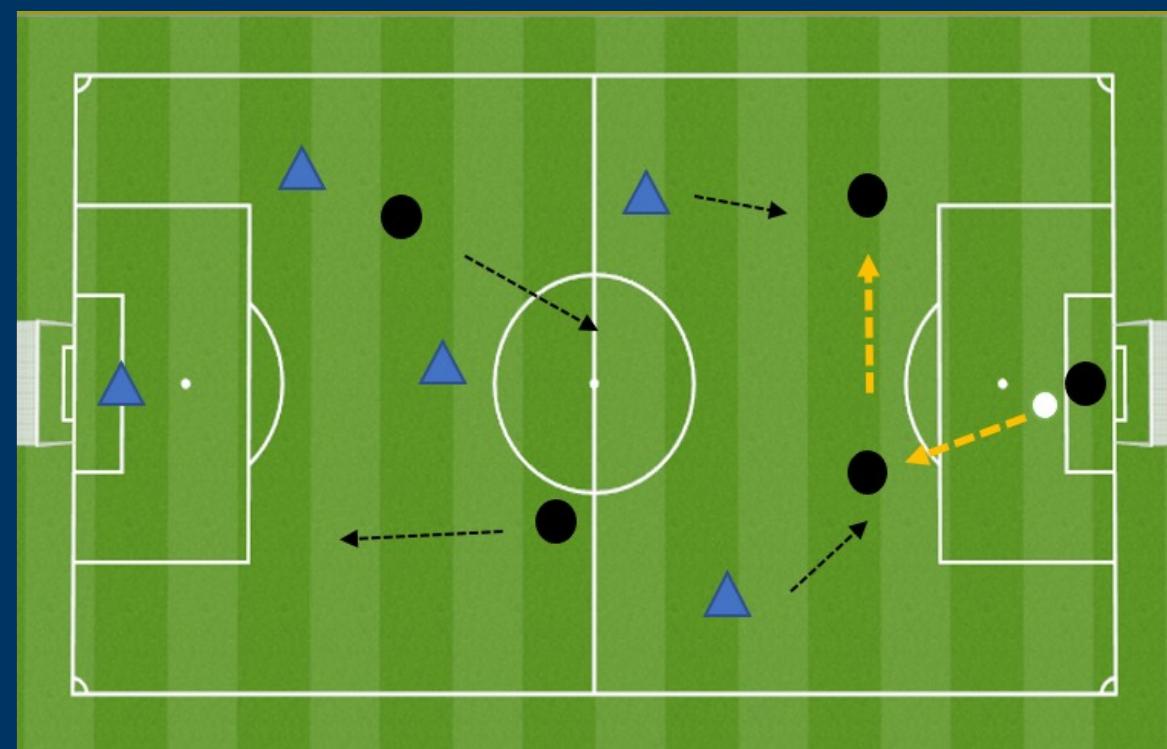
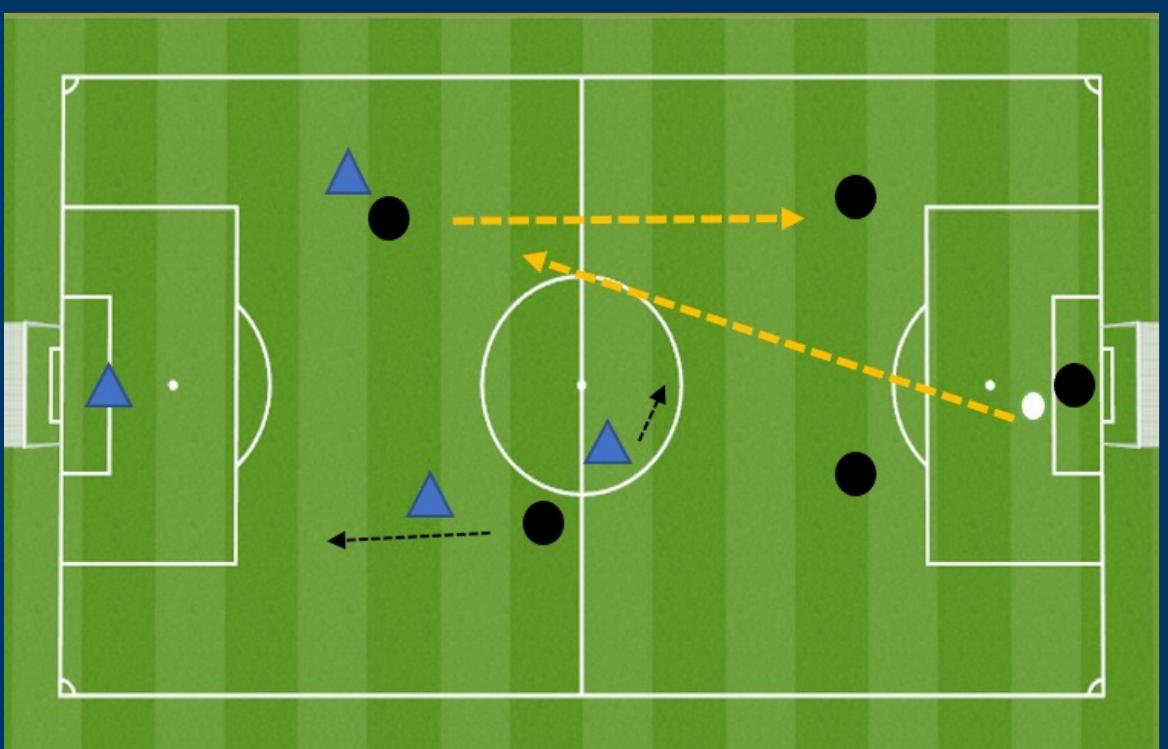


Key Concepts

REPETITION WITHOUT REPETITION

Repetition without repetition (Bernstein 1967, p234)

- ▶ Framed around manipulating variability to enhance adaptability and increase or decrease (in)stability
- ▶ As practitioners we want to encourage learners to 'explore, exploit and discover'
- ▶ To facilitate *repetition without repetition* we want learners to repeat the same task goal/solution (solving a performance problem) but in a variety of different ways. We achieve this through constraints manipulation



PART 2...

YOU ARE THE DoM, LETS SOLVE SOME PROBLEMS



Performance Problems

USING A DoM, SOLVE THESE PERFORMANCE PROBLEMS

ADVISE...MAYBE MAP OUT WHAT IT MIGHT LOOK LIKE IN SEPARATE DISCIPLINES AND THEN TRY AND VIEW THE WHOLE PROBLEM

- ▶ Problem 1 - Football - Some players in the team need to improve their ball control & fitness -
- ▶ Problem 2 - Gymnastics - Player is feeling worried about back somersault on beam as keeps losing balance and falling off -
- ▶ Problem 3 - American Football - QB is sacked (tackled) too much -
- ▶ Problem 4 - Tennis - Player is struggling with speed across court post knee surgery
- ▶ Problem 5 - Basketball - Decision making when to pass or dribble -
- ▶ Problem 6 - Swimming -

