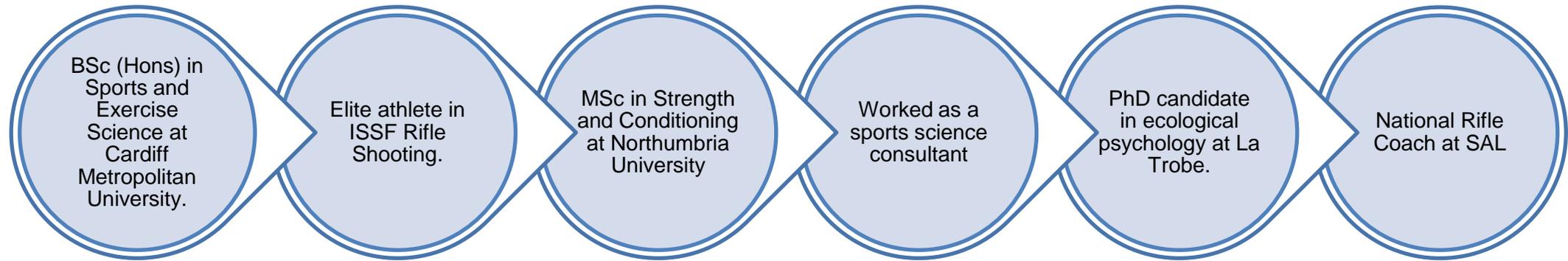


How to take young athletes to the next level and make them successful at the international level in adult competitions

By Jack Bale

Introduction



• State Coach for Victoria



Cardiff Metropolitan University



Northumbria University
NEWCASTLE



LA TROBE UNIVERSITY



What are the characteristics of elite athletes?



- Stable and consistently high outcome
- **Adaptable**
 - Can perform in most situations

Difference between Technique and Skill

- **Technique** is the individual components of the shot process
- **Skill** is the adaptation of those techniques to better navigate to the task goal due to changing constraints (**the elite athlete's capability**)

(Bennet & Fransen, 2023)



Characteristics of skilled performance

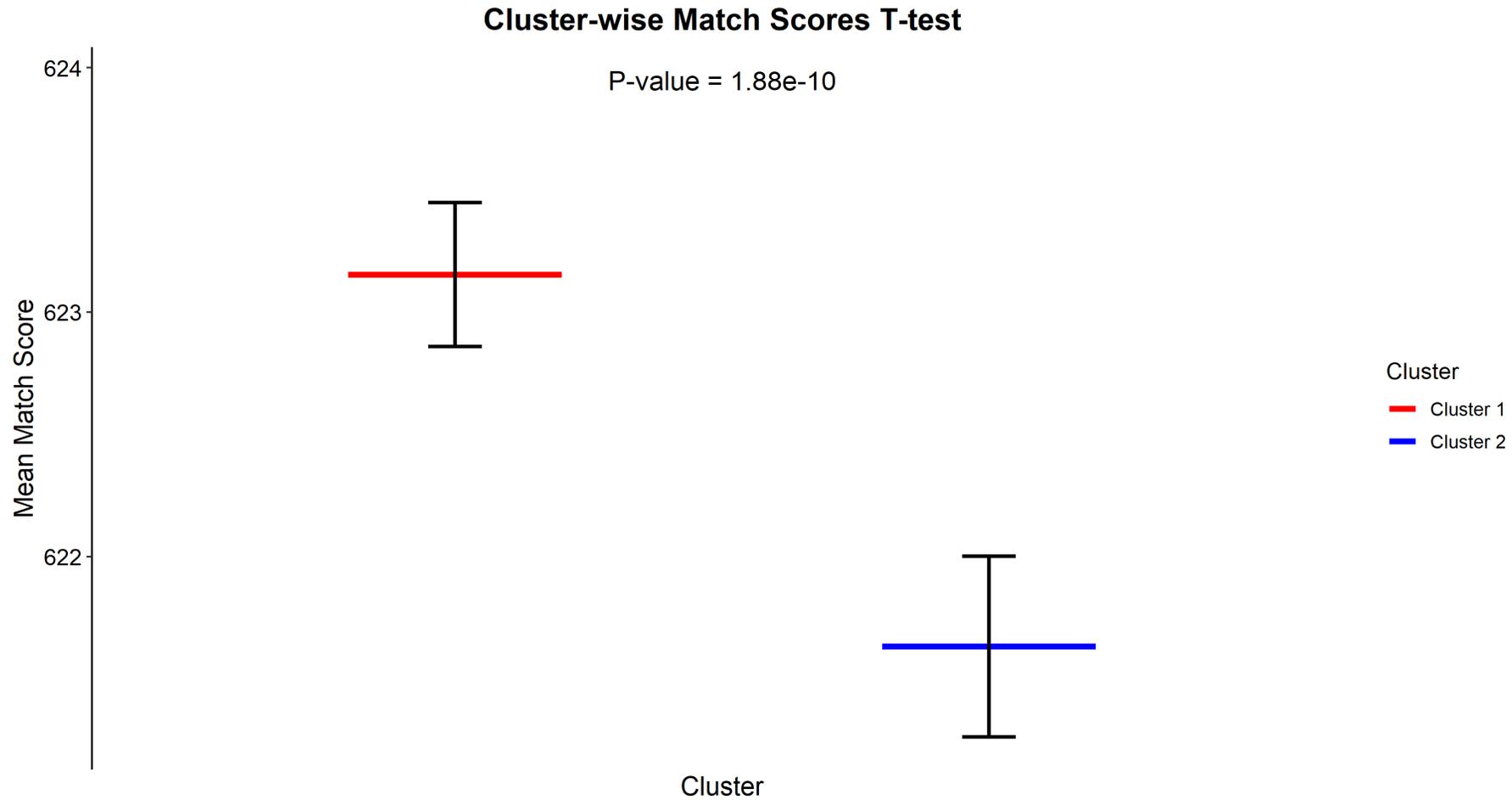
- Stability and flexibility in techniques
- An understanding of the micro difference in each repetition
 - Able to seek information
 - Master of intentions

Characteristics of skilled performance

Elite long jump athletes will vary their step length on a run-up to optimise their final foot contact (McCosker et al., 2021)

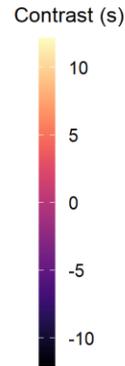
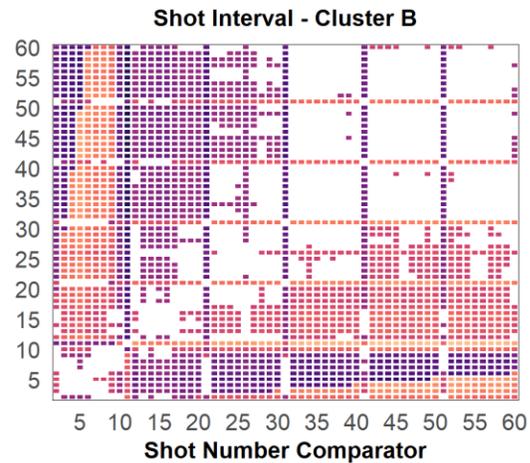
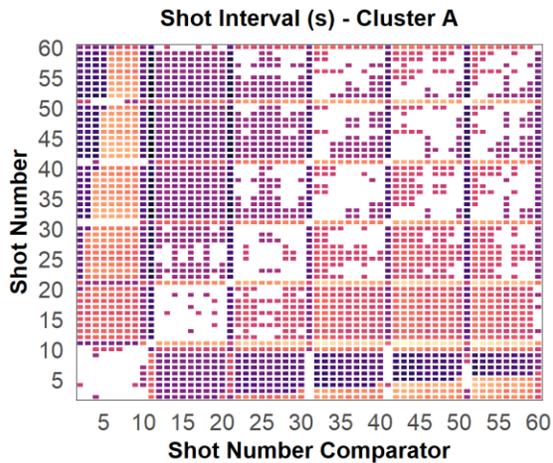
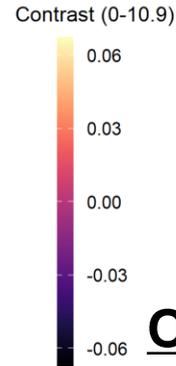
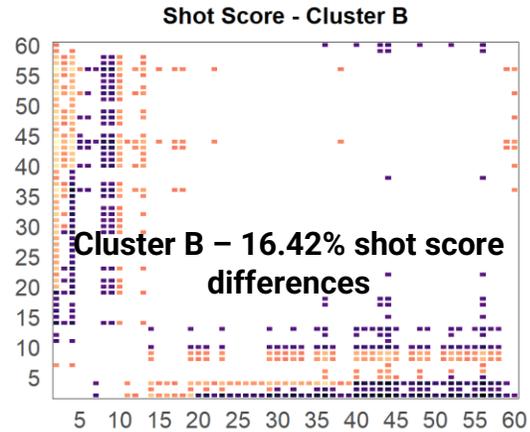
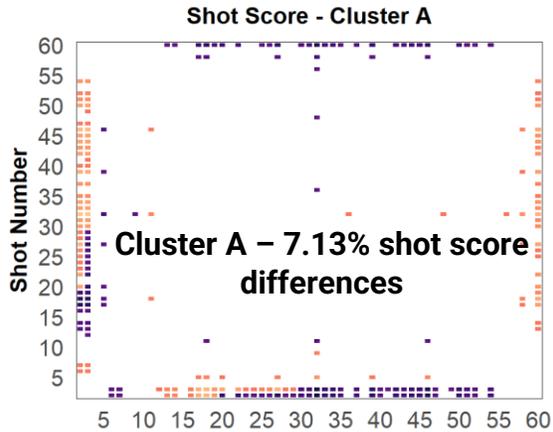


Skilled performance in ISSF Shooting



Bale et al., (in review)

Skilled performance in ISSF Shooting



Outcome Magnitude (Score)

Cluster A > Cluster B

Outcome Stability (Score)

Cluster A > Cluster B

Outcome difference Magnitude Stability (Score)

Cluster A > Cluster B

Time Interval length

Cluster A > Cluster B

Time Interval shot-by-shot differences

Cluster A > Cluster B

Time Interval magnitude of Variability

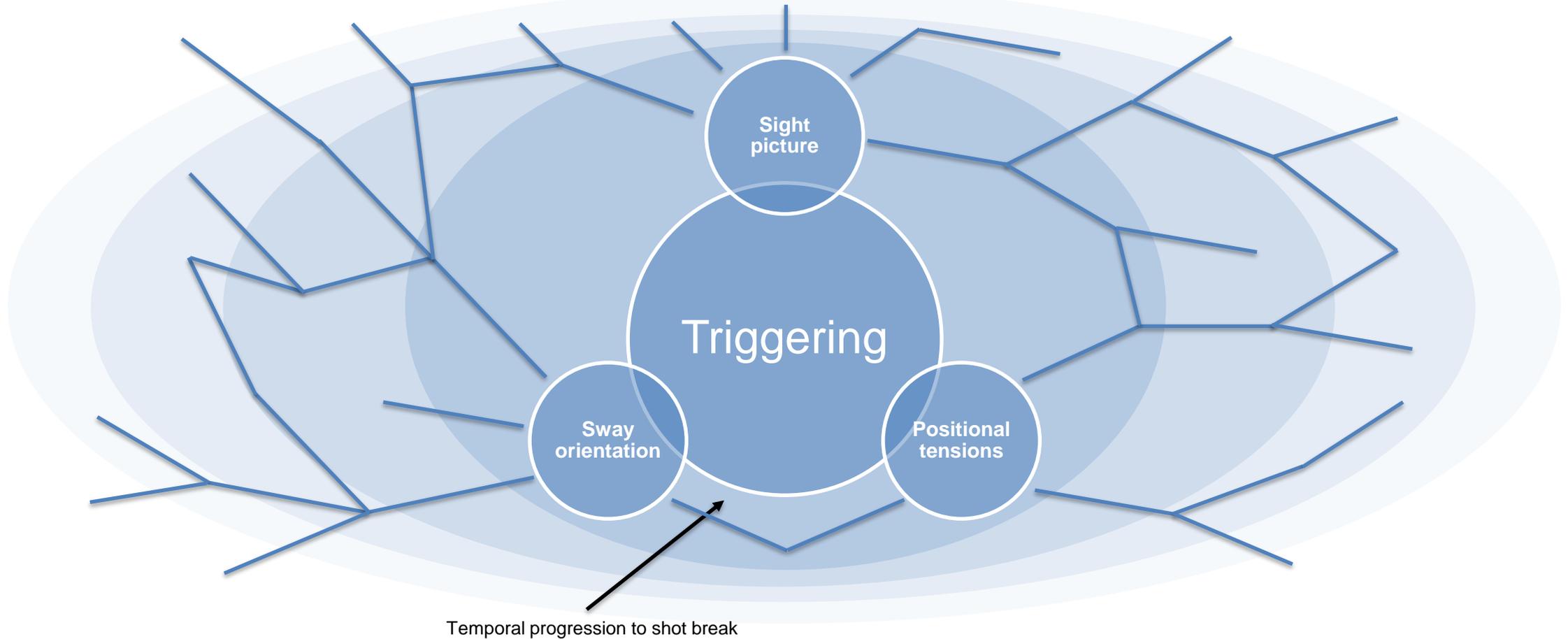
Cluster A > Cluster B

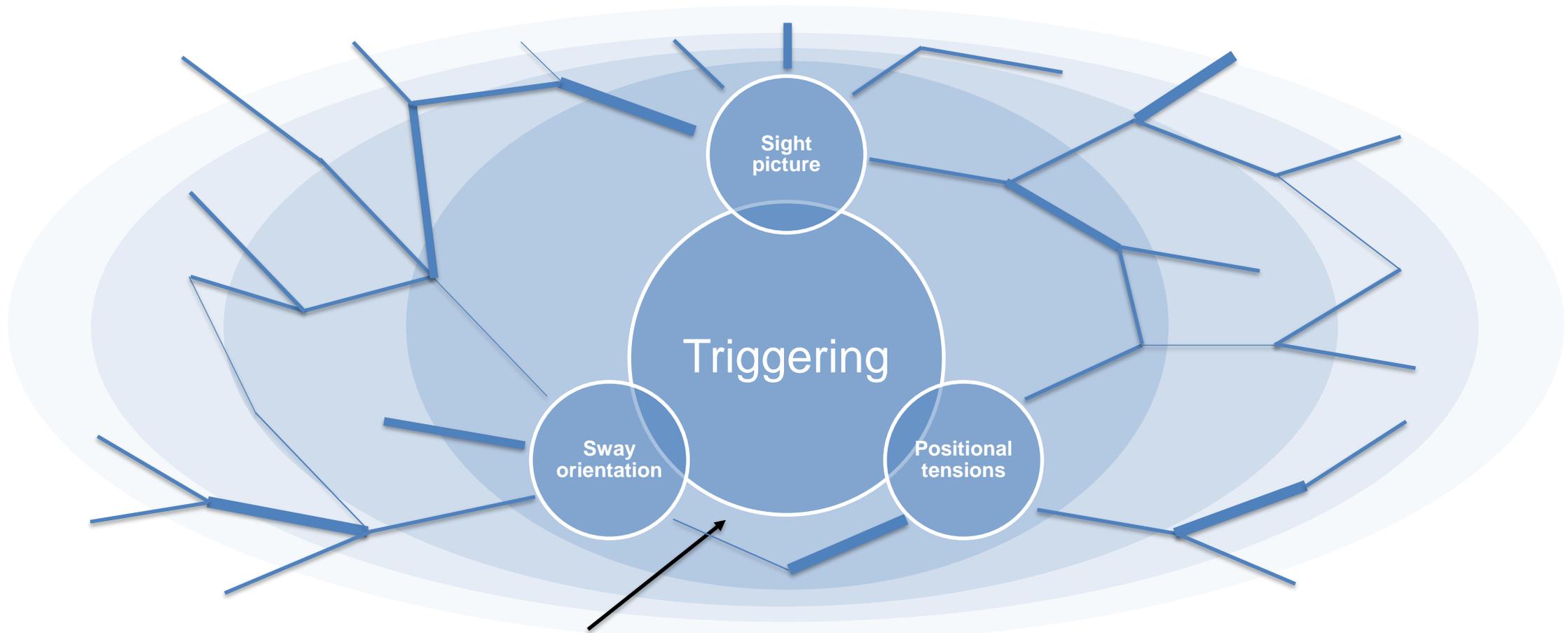
Bale et al., (in review)

How do elite athletes determine what needs to change?

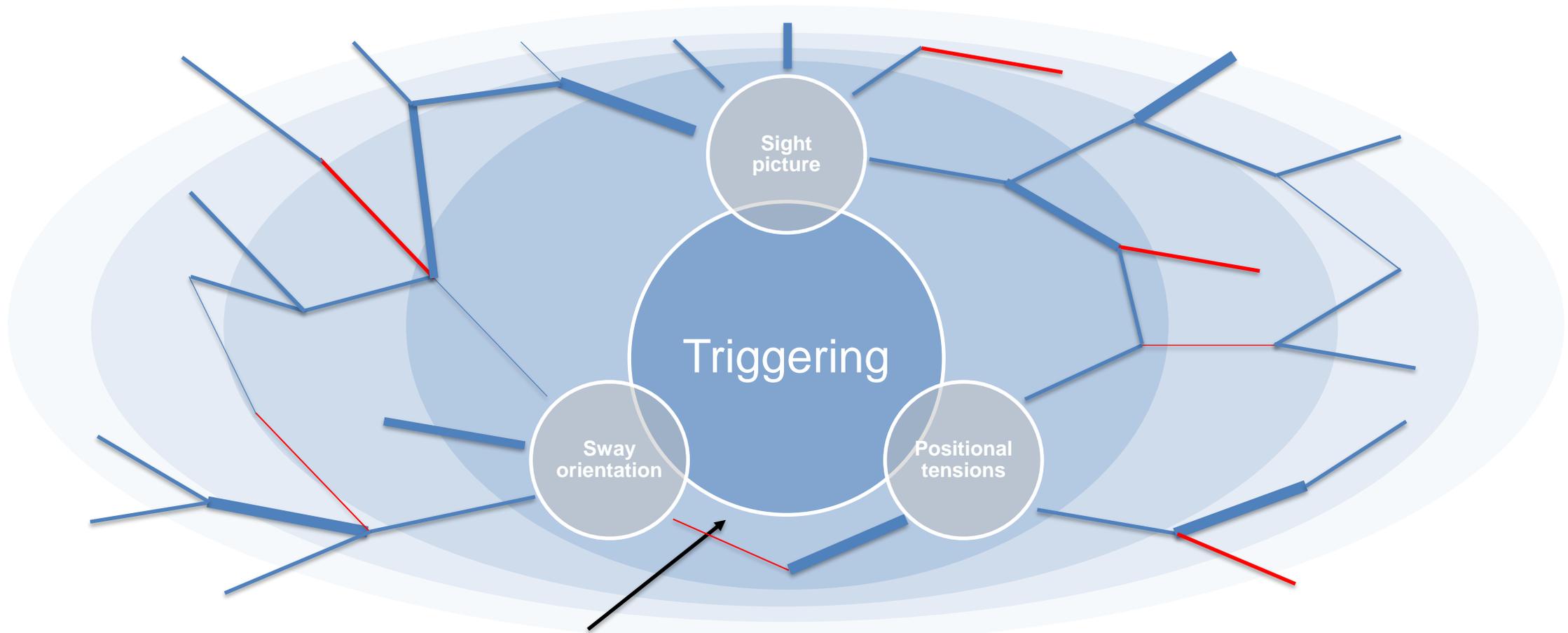
Taskscape (Woods et al., 2021)

“entire ensemble of tasks in their mutual interlocking”





Temporal progression to shot break

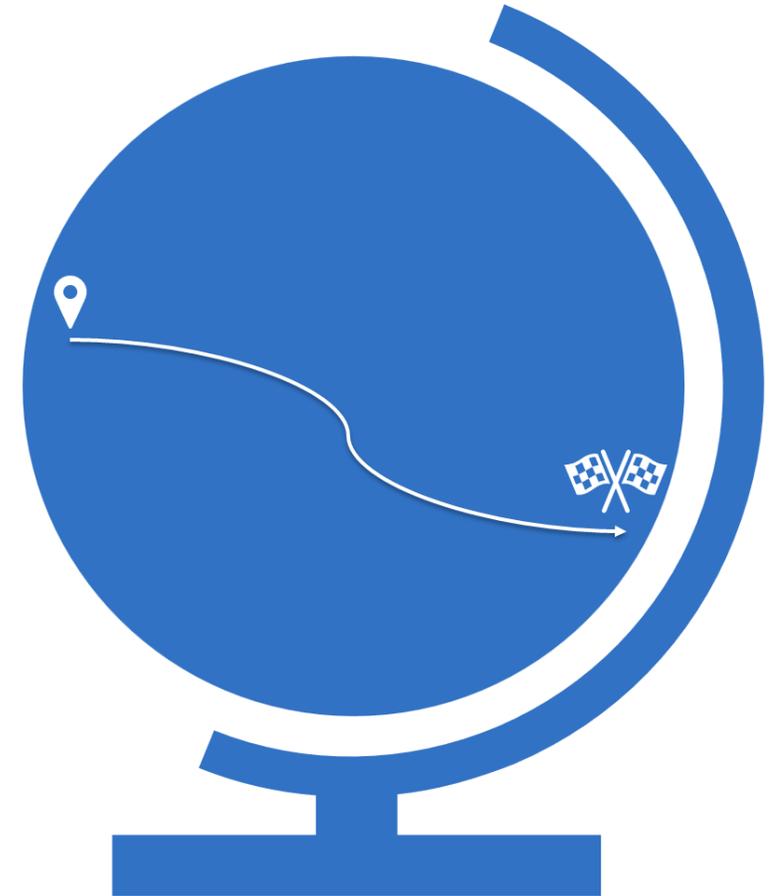


Temporal progression to shot break

How can we help athletes develop this adaptable behaviour?

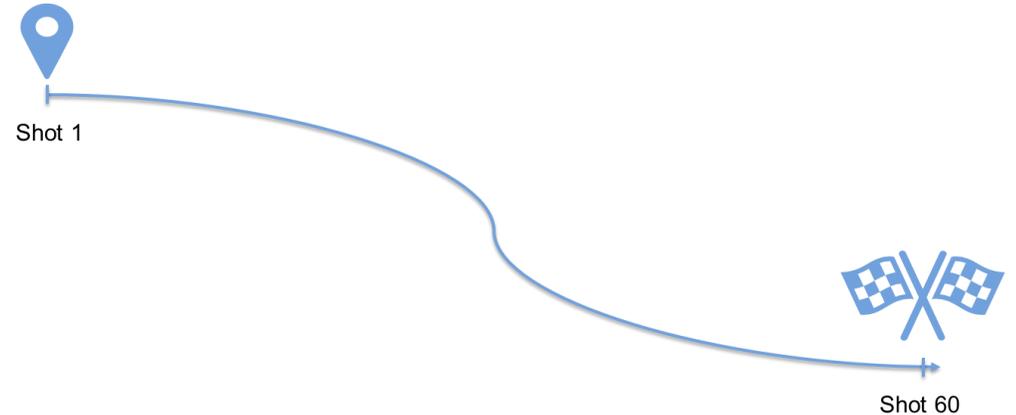
Tiennäyttäjä (Woods et al., 2020, 2021)

- A Tiennäyttäjä is “**an actively self-regulating individual** who relies on perceptions, cognitions, emotions and actions, finding their way through the taskspace.”
- Navigating through time & space



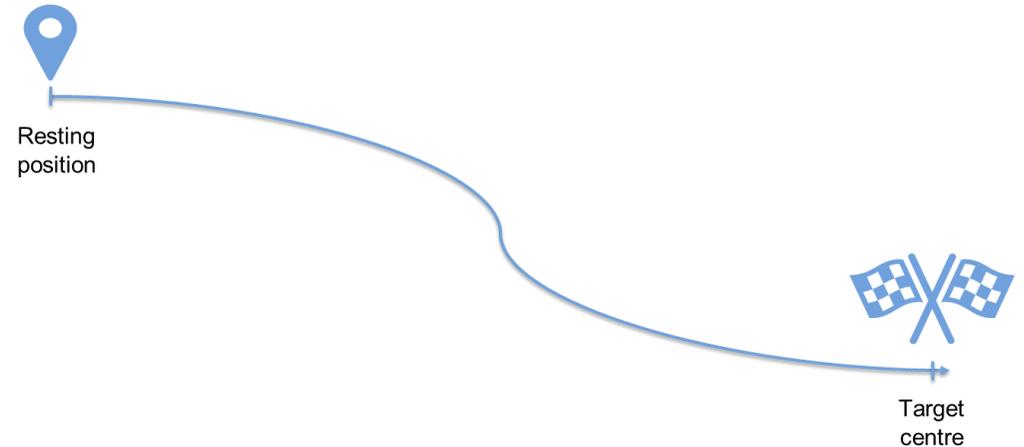
Tiennäyttäjä (Woods et al., 2020, 2021)

- A tiennäyttäjä is “**an actively self-regulating individual** who relies on perceptions, cognitions, emotions and actions, finding their way through the taskscape.”
- Navigating through time & space
- **The journey of getting from the start of a match to the end**



Tiennäyttäjä (Woods et al., 2020, 2021)

- A tiennäyttäjä is “**an actively self-regulating individual** who relies on perceptions, cognitions, emotions and actions, finding their way through the taskscape.”
- Navigating through time & space
- **The journey of getting from the start of the shot process to the shot release.**



Why is tiennäyttäjä Important

Constraints (Newell, 1986)

Constraints **impose limits or enable the emergence** of coordinated actions (Davids et al., 2003; Davids et al., 2008)

Constraints (Newell, 1986)

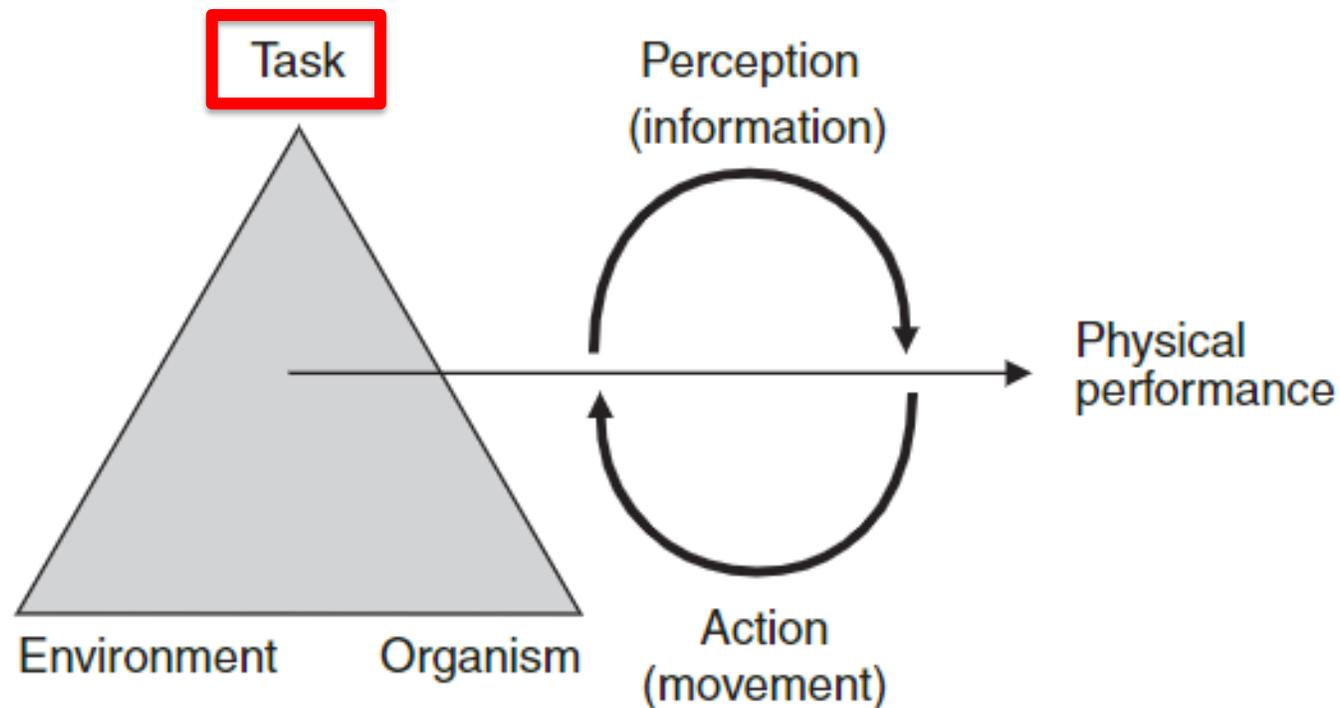


Fig. 1. Newell's model of interacting constraints adapted to illustrate the resulting effects on variability of physical performance.

Constraints (Newell, 1986)

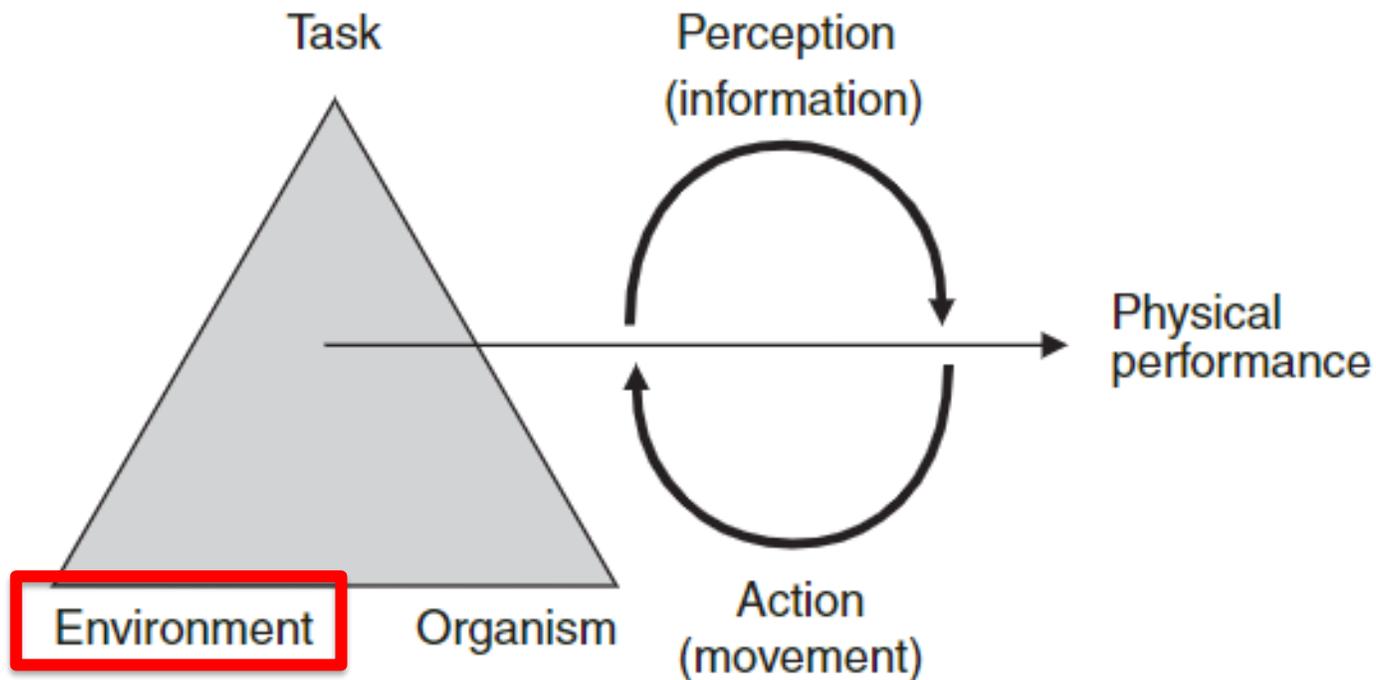


Fig. 1. Newell's model of interacting constraints adapted to illustrate the resulting effects on variability of physical performance.

Constraints (Newell, 1986)

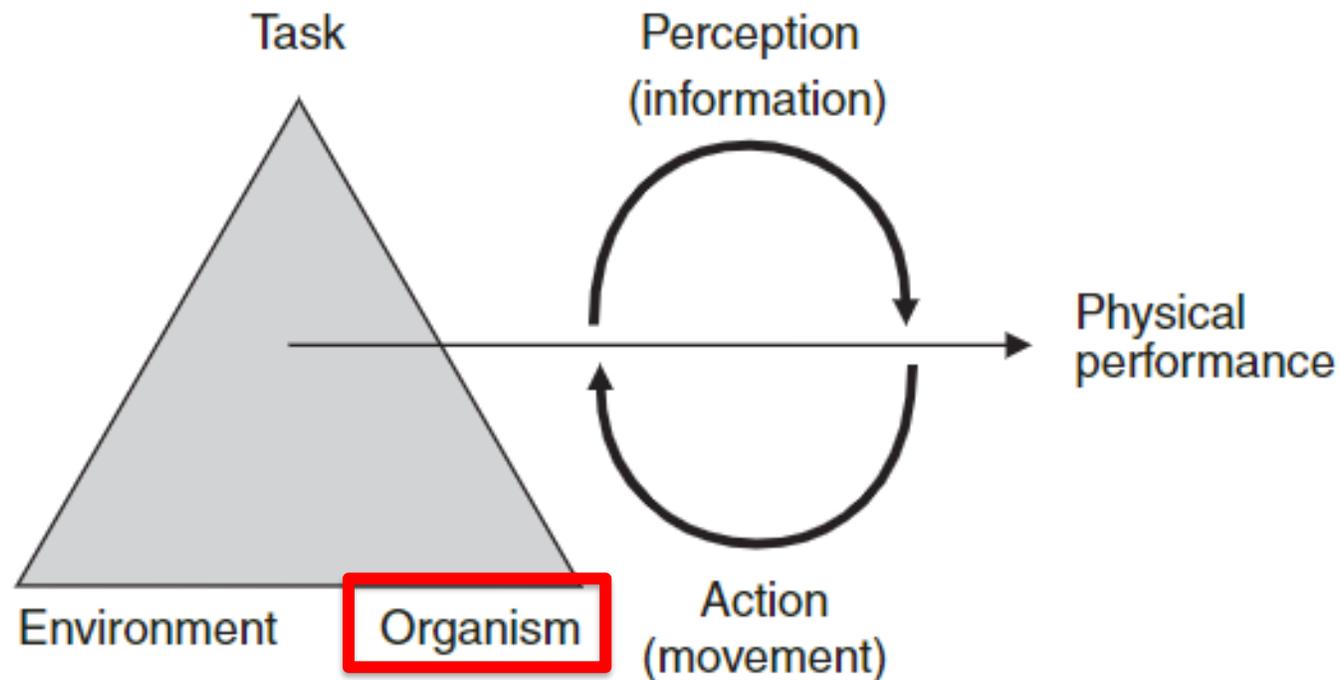
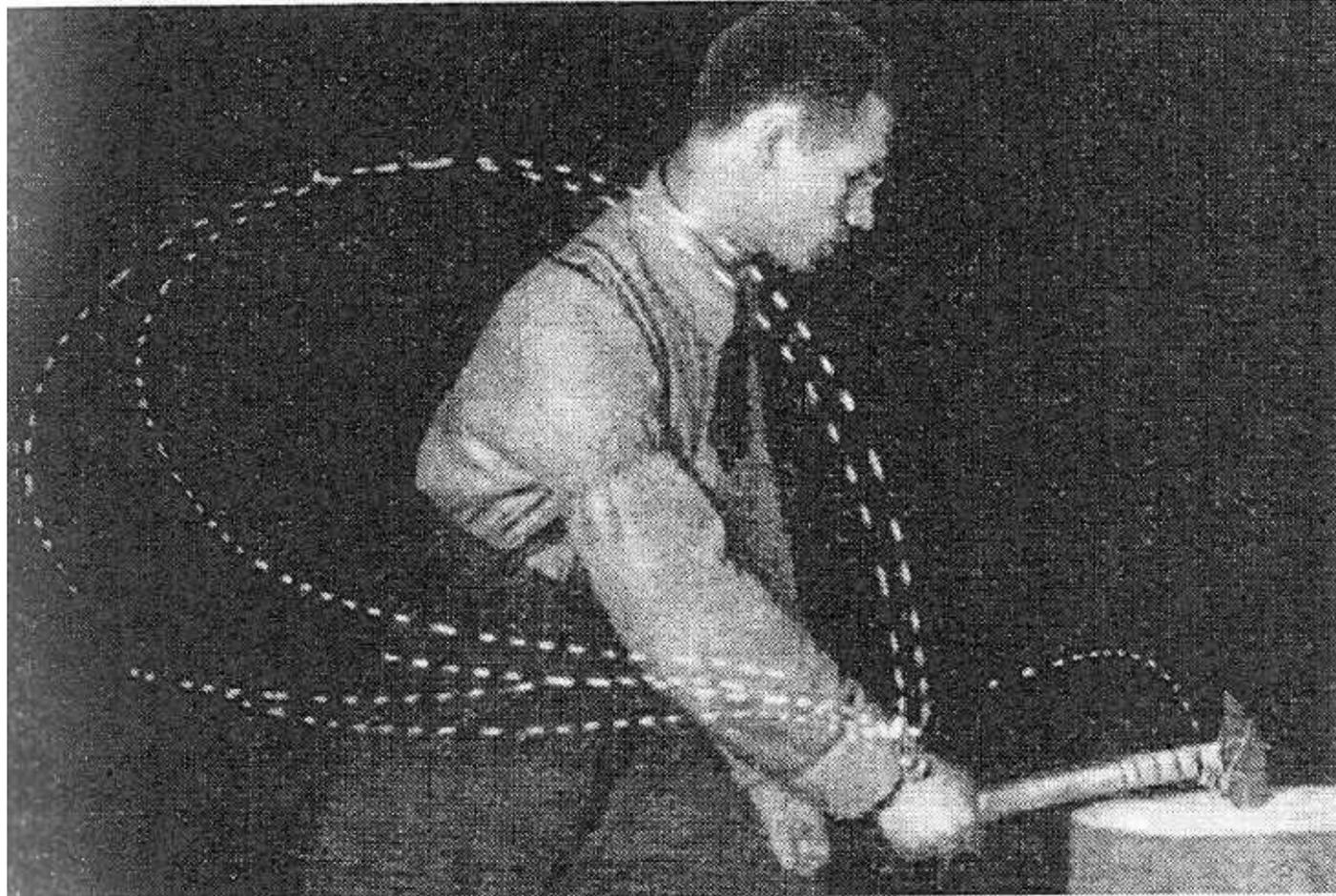


Fig. 1. Newell's model of interacting constraints adapted to illustrate the resulting effects on variability of physical performance.

Degrees of Freedom Problem (Bernstein, 1967)



How to Create a Tiennäyttäjä

Exploratory exercises

- Allow athletes to explore a wide range of techniques
(Even if they are not always optimal)
- Guide the athlete's attention to the interconnected nature of techniques.
- Provide activities to aid the athlete in seeking information

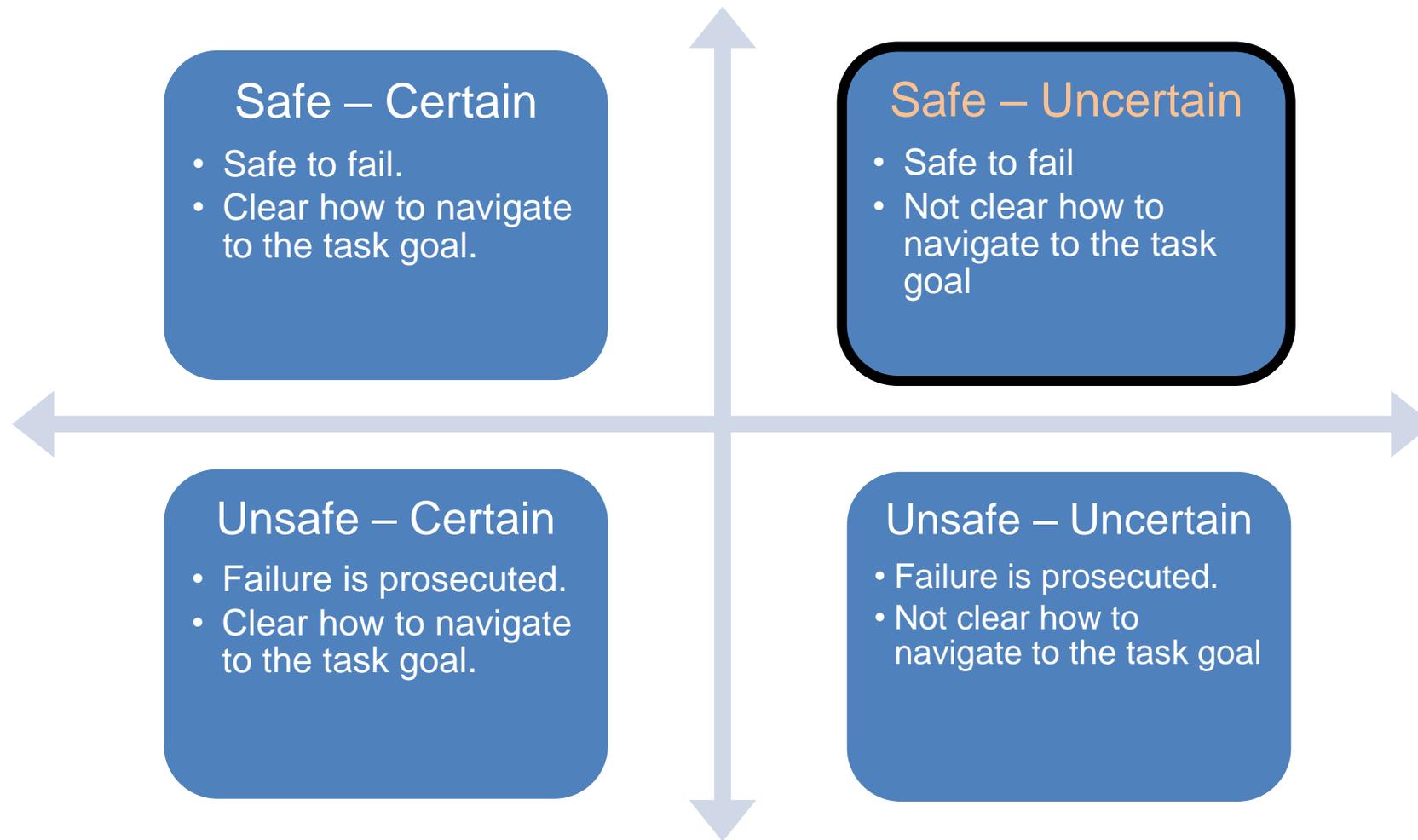
‘Knowledge of’ > ‘Knowledge about’

(Gibson, 1979)

Exploratory exercises Considerations

- Keep the activities representative
- The techniques must adhere to laws of physics (but exposing athletes to techniques that do not, aids their understanding)
- Periodisation

Woods et al., (2021)



Is your athlete ready?

If your athlete gets to the national team and is afraid to make changes, explore new solutions, requires their personal coach to make decisions for them, or does not try to problem-solve in competition, **you have failed as a coach!**

Is your athlete ready?

Jos sinun urheilijasi valitaan maajoukkueeseen ja hän ei uskalla tehdä muutoksia, kokeilla uusia ratkaisuja, tarvitsee henkilökohtaista valmentajaa tekemään hänen päätöksensä tai ei yritä löytää ratkaisuja ongelmiin kesken kilpailun,
SINÄ valmentaja olet epäonnistunut!

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