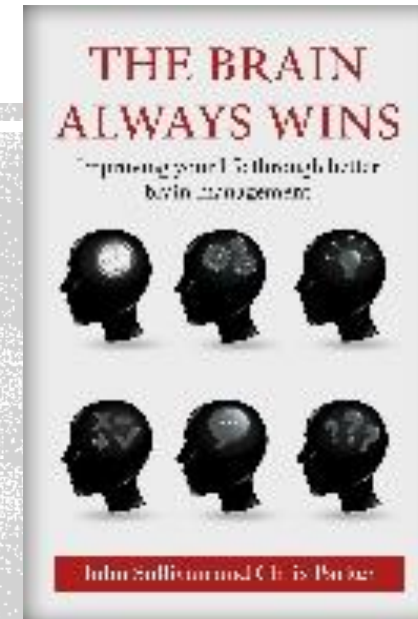


The Performing Brain: Beyond Marginal Gains



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Professional Experience



Overview

- Myths about the brain
- Reasons why we are all brain-first performers
- A look at whether we are settling for marginal gains
- The 'brain-first' approach to sport coaching
- Neurodiversity and athlete development



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The illusion and allure of marketing vs. science

Mental Toughness



The ability to cope with or handle pressure, stress, and adversity; an ability to overcome or rebound from failures; an ability to persist or a refusal quit; insensitivity or resilience and; the possession of superior mental skills.

(See: Bull et al., 2005; Connaughton et al., 2008; Gucciardi et al., 2009)

Grit



A positive, non-cognitive trait based on an individual's passion for a particular long-term goal or end state, coupled with a powerful motivation to achieve their respective objective. This perseverance of effort promotes the overcoming of obstacles or challenges that lie within a gritty individual's path to accomplishment and serves as a driving force in achievement realization.

(See: Duckworth et al., 2007, p.1087)



The Fragility of Consciousness

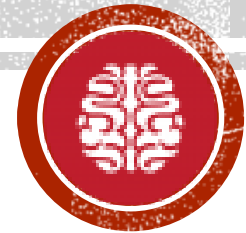
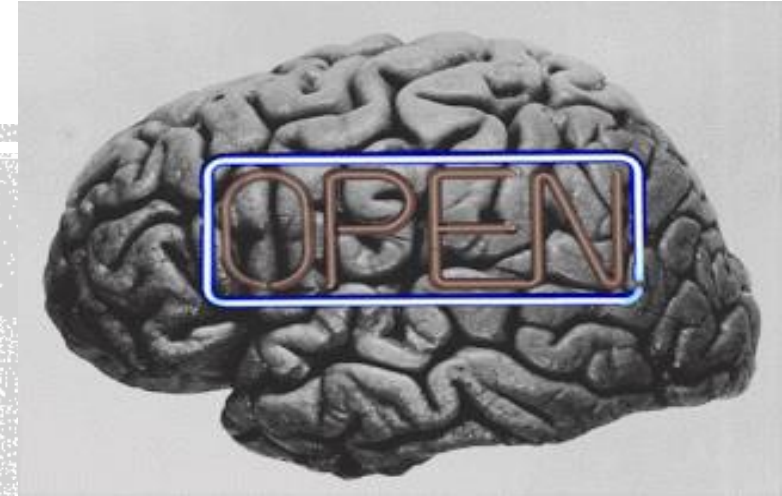
- ❖ Consciousness serves the brain
- ❖ Consciousness evolved as our brain grew in size
- ❖ Consciousness assists in survival and learning
- ❖ We may not be the only animals with consciousness
- ❖ Our internal dialogue is an artifact of the past

In fact, our internal dialogue (or internal recognition) is approximately 200 to 350 milliseconds behind what the brain already has figured out



THE ADVANTAGE WE IGNORE

- We use 10% of our brain
- Muscle memory
- Non-emotional decision making
- We are either left or right brain dominate
- Brains are like computers
- The brain stops growing after 30yrs.



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The Inconvenient Truth of Sport

Exercise is neuroprotective, while Sport is trauma

◆ Environmental and Systemic Factors

- 👤 Lifestyle
- 📅 Total Load (Training & Life)
- 🏢 Organizational Systems Stress

◆ Human Resource and Interpersonal Factors

- 👤 Detrimental coaching climates
- 📅 Inadequate training of sports personnel
- 🏃 Deficient support by sport scientists to examine training practices
- 🗣️ Few properly trained sport psychologists, with competency to detect brain health issues among athletes

Our Brain Makes Us Elite Performers

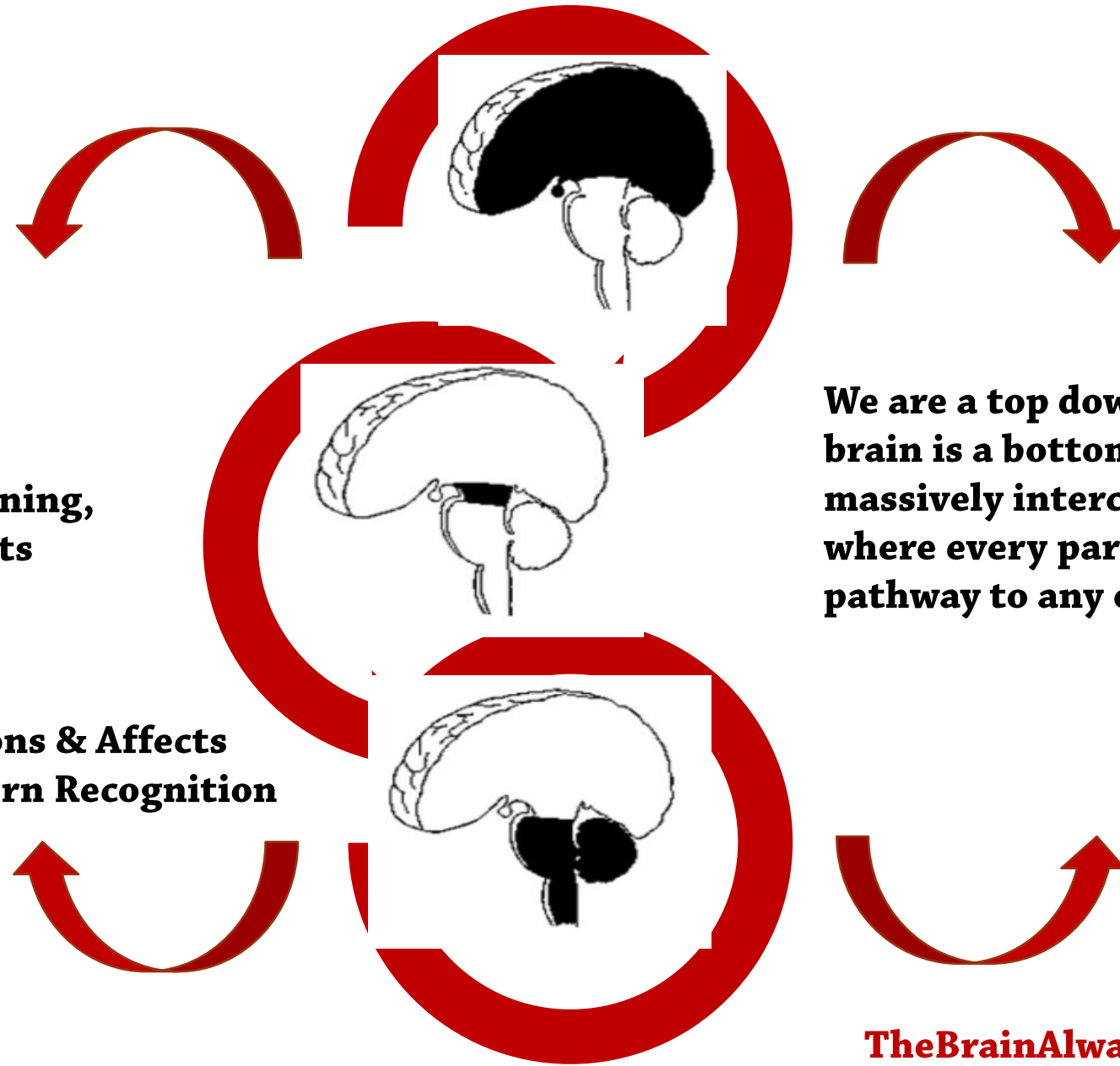
- ◆ Emotions
- ◆ Attention
- ◆ Executive Function
- ◆ Memory
- ◆ Language
- ◆ Visuospatial Abilities



**Tertiary Process –
Executive Functioning,
Cognitions**

**Secondary Process – Learning,
Memory, Emotional Habits**

**Primary Process - Emotions & Affects
Survival, Adaption, Pattern Recognition**



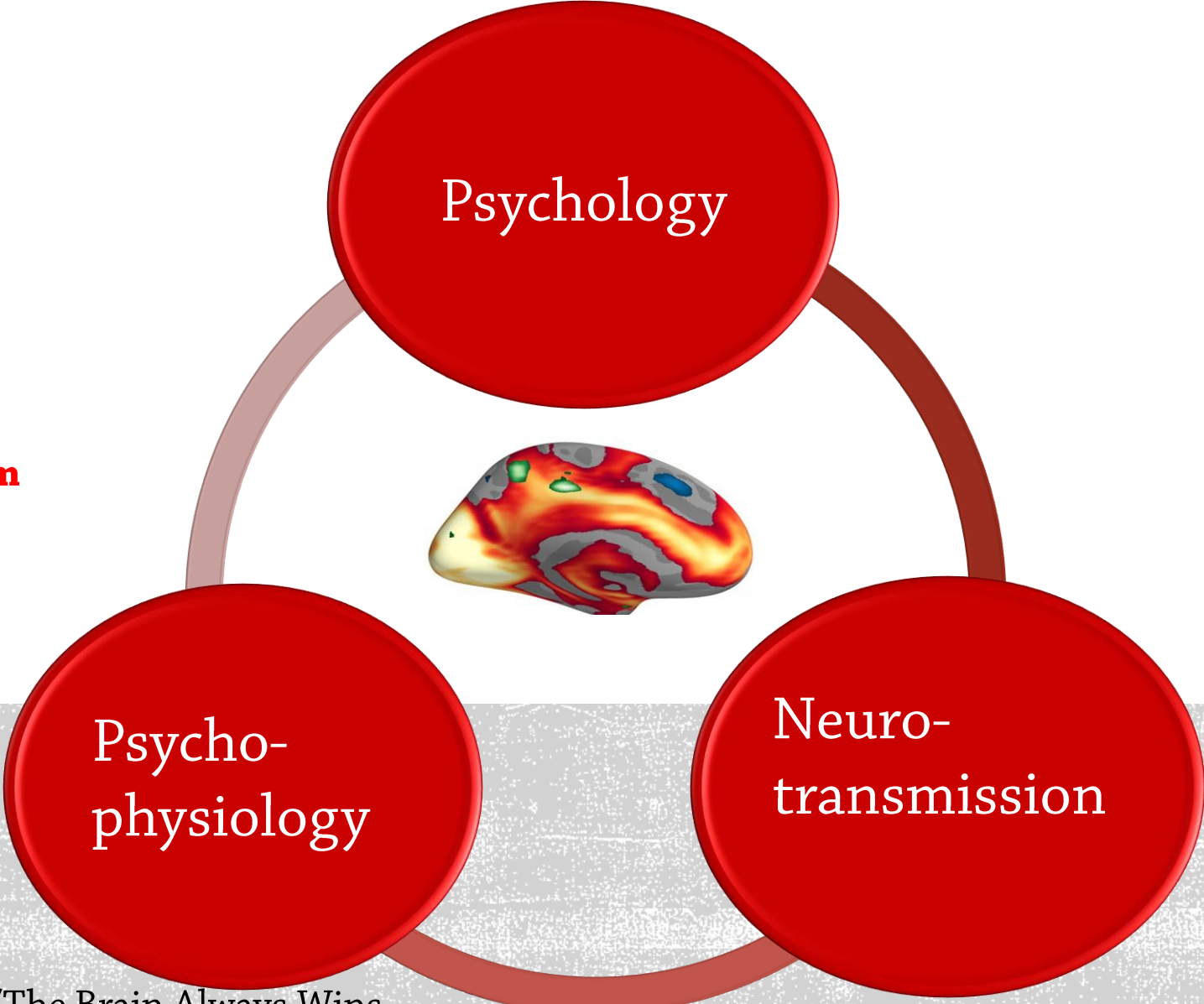
**We are a top down system but the
brain is a bottom up system that is
massively interconnected system
where every part can find an access
pathway to any other part**



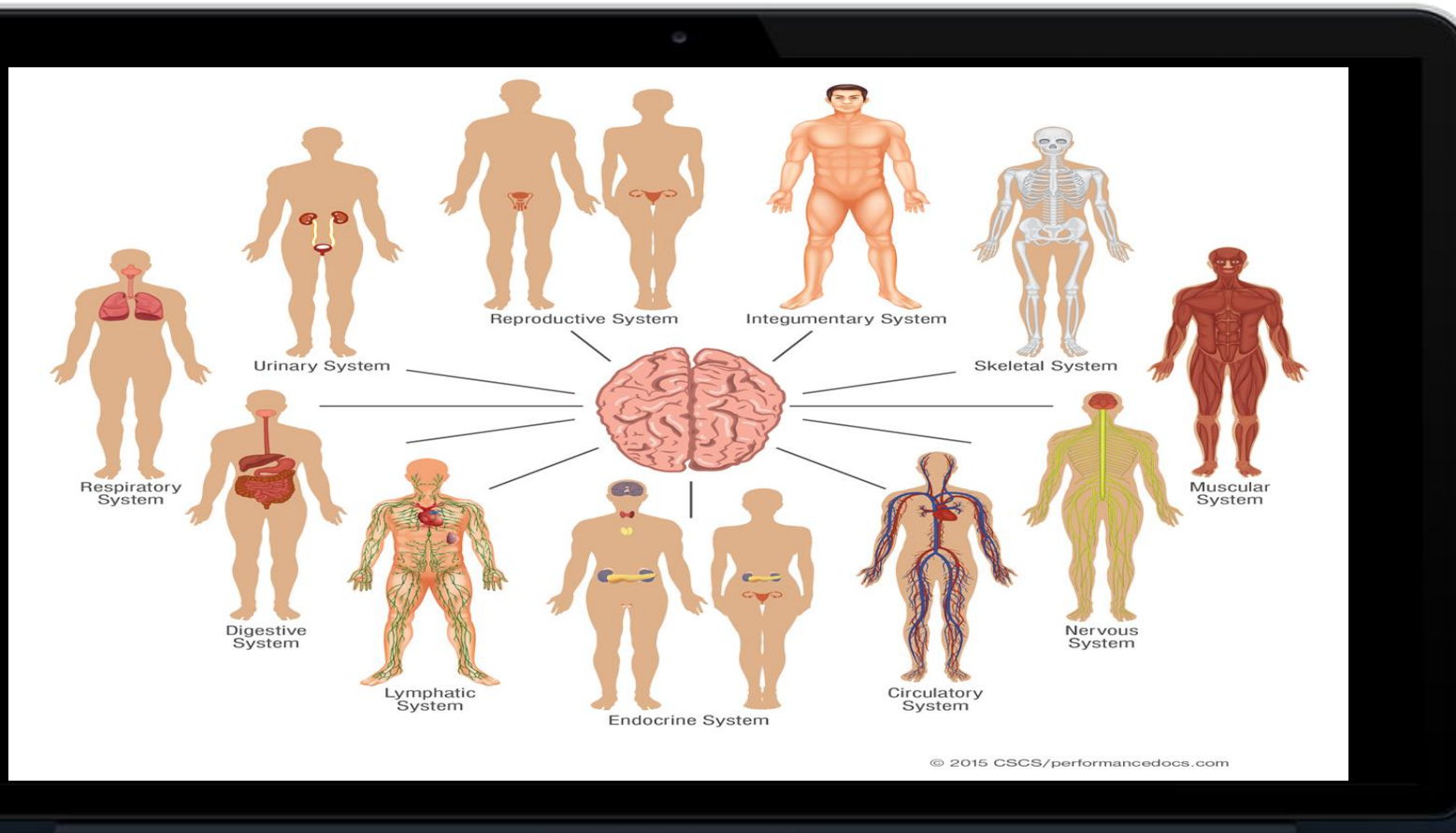
Reasons why we are all brain-first performers



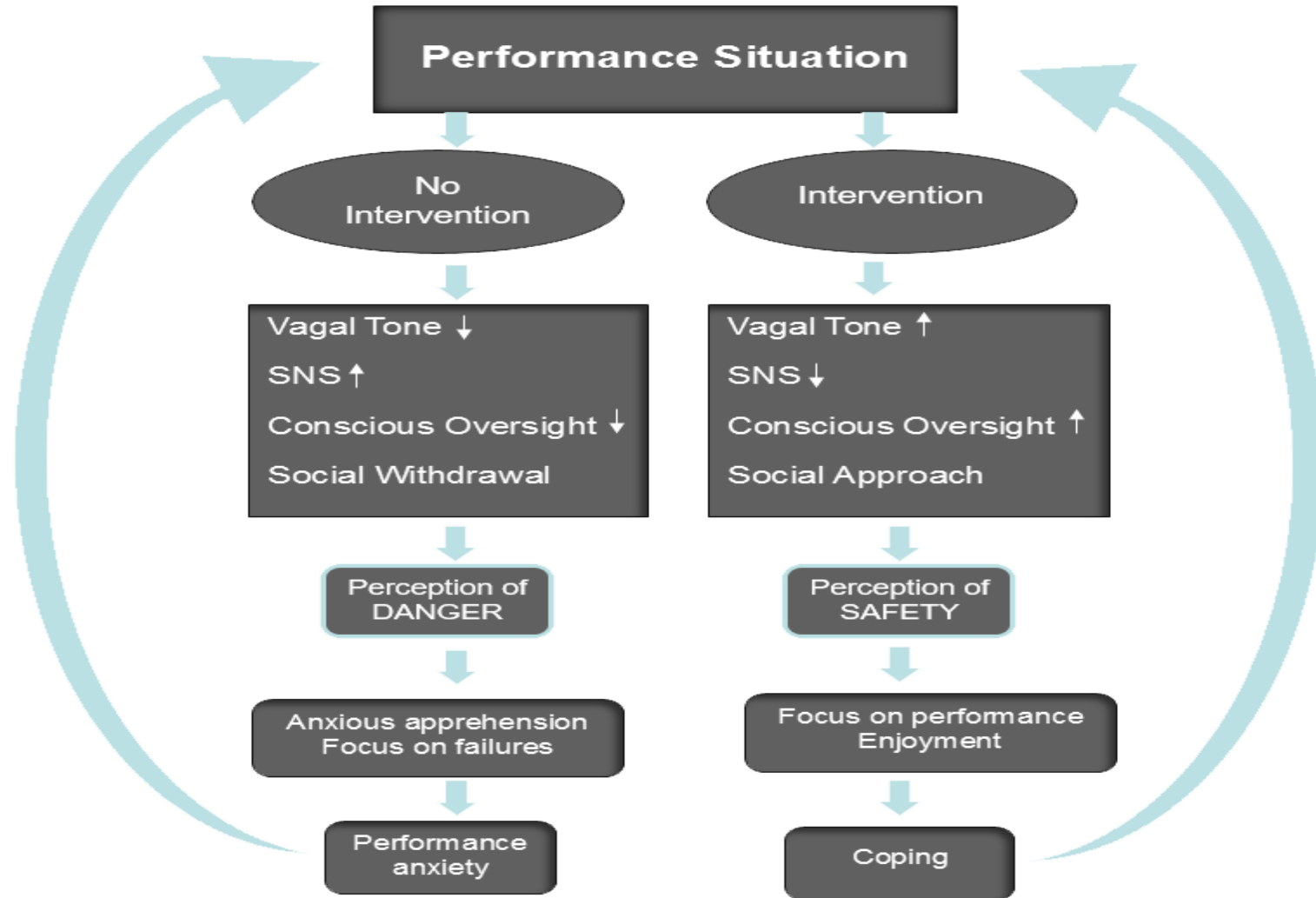
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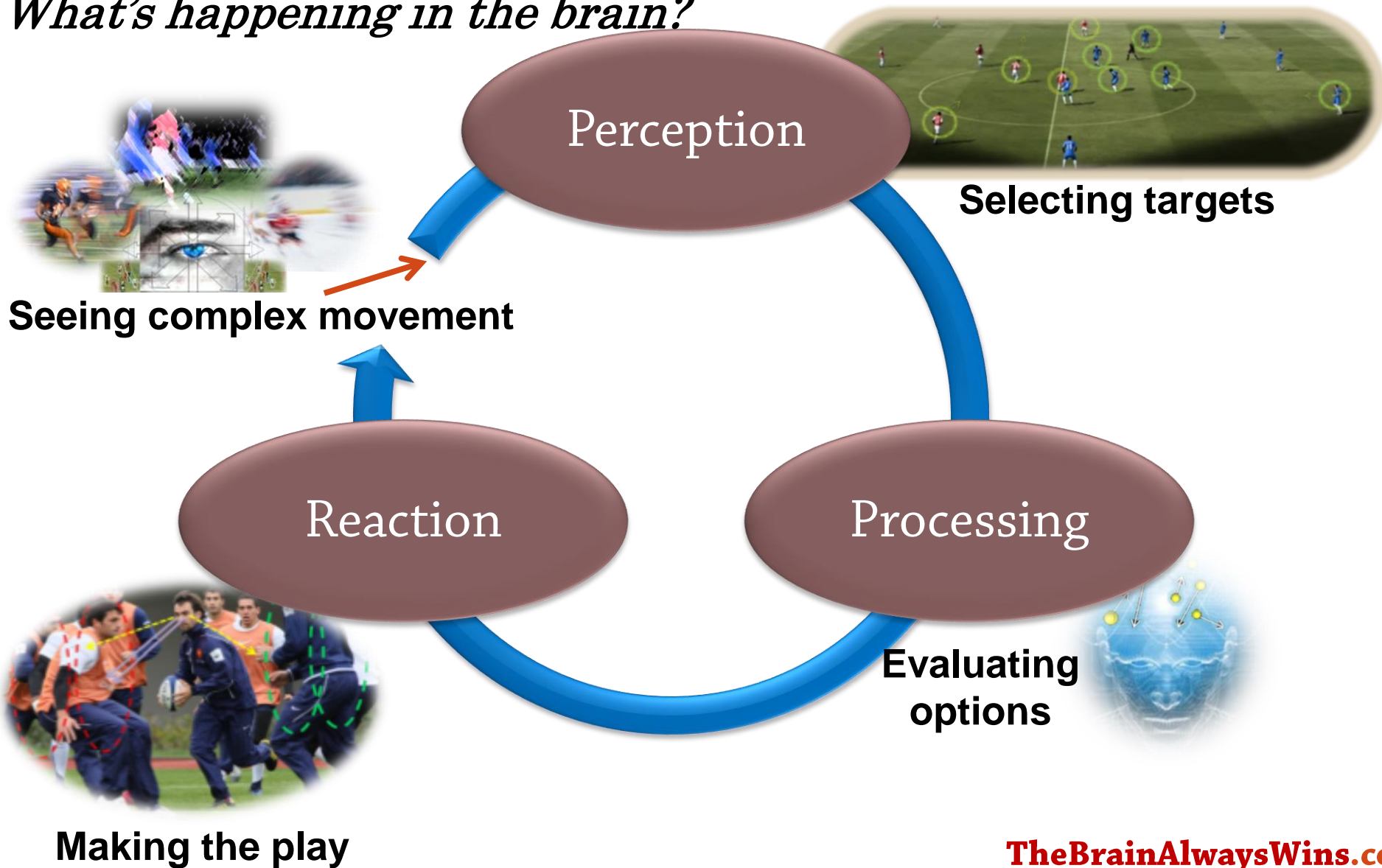
Marginal gains?



The Performing Brain and Regulation



What's happening in the brain?



Sport Coaching: A Brain Perspective



- ❖ **Coaches are performers**
- ❖ **Emotions run the show**
 - Misdirected energy
 - Reduced capacity to make decisions
 - Working memory is reduced
 - Incongruent verbal exchanges
 - Incongruent non-verbal exchanges
 - Over-instruction

Rethinking Sport and Athlete Development: Neurodiversity



What is the variation trying to tell us about a process, about the people in the process?

(W. Edwards Deming)

❖ What are the sources of individual differences in athlete learning/development?

❖ How can these sources of neurodiversity be seen as strengths to advance athlete learning/development?

❖ What are the optimal situations for the athlete to learn?

SUMMARY: BRAIN HEALTH = ATHLETE WELLBEING = HIGH PERFORMANCE

- 🧠 The brain always wins, it's the governor of health and performance
- 🧠 As our evidence base evolves, so should the way that we our interact with athletes
- 🧠 Sport Medicine and Science professionals have a duty of care
- 🧠 Educate and mentor coaches and administrators on the latest science behind learning and interpersonal neurobiology
- 🧠 Evaluate your human resources to determine if you have a full sports medicine and sport science team



Thank You



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THE BRAIN ALWAYS WINS

Improving your life through better
brain management



John Sullivan and Chris Parker



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