



**CANADIAN  
SPORT FOR LIFE**

## The New Coaching: Rethinking Sport Coaching to Develop Physical Literacy

*Summit, January 2016*

*Paul Jurbala*





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**Physical Literacy  
is communication.**





**Sport is a system of  
constraints.**

# Constraints: human, social, situational

Human constraints:  
evolutionary



Performance: developed  
over months, years

Social constraints:  
consensual



Performance: hours, minutes

Situational constraints:  
emergent



Performance: seconds and milliseconds

**Coaching is the  
manipulation of  
constraints to  
achieve targeted  
results.**

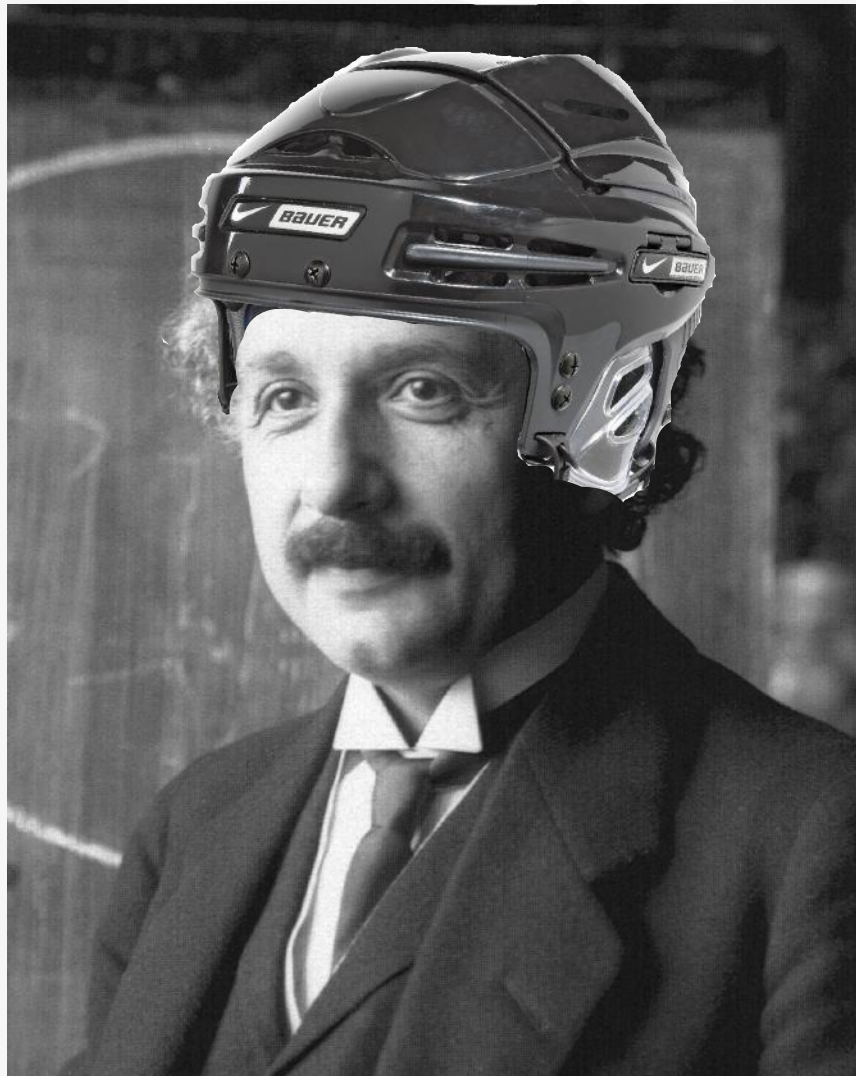
[file:///localhost/Users/pauljurbala/Desktop/19U Sweedish 2 Ball.mp4](file:///localhost/Users/pauljurbala/Desktop/19U%20Sweedish%20Ball.mp4)



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# How do we coach the cognitive?



# Motor Control in PL

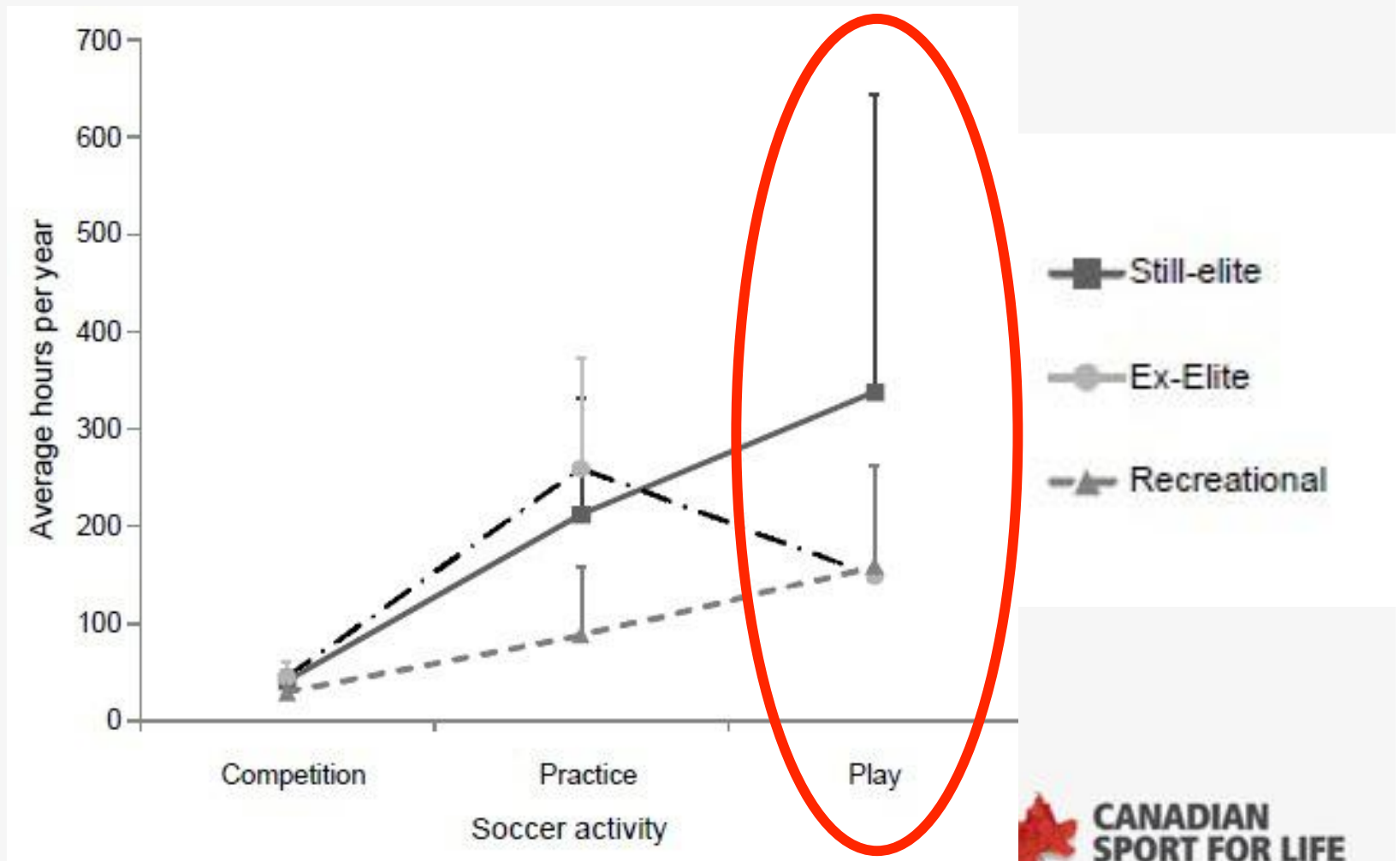
- Improvements in physical literacy require improvements in motor control.
  - Brain training: life-long neuroplasticity
  - Repetition based learning
  - Motor mimicry
  - “Executive function”: decision-making
  - Engage experimentation & creativity
  - Instill confidence
    - Accuracy first speed second.
    - Progressive application: reduce time & space, increase competitive pressure (+ constraints).



# Deliberate play is foundational “Playing with a purpose”

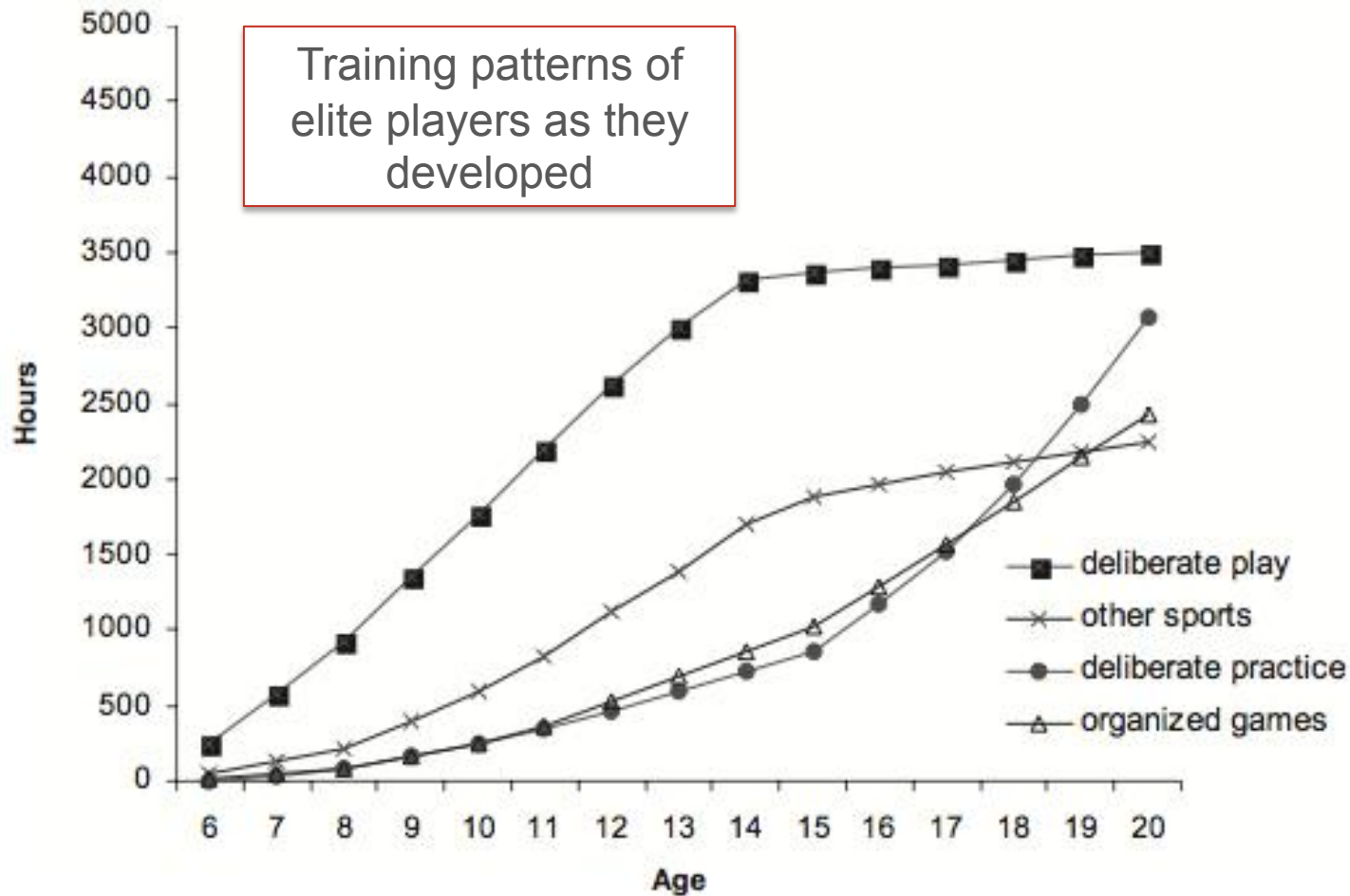


# Deliberate play



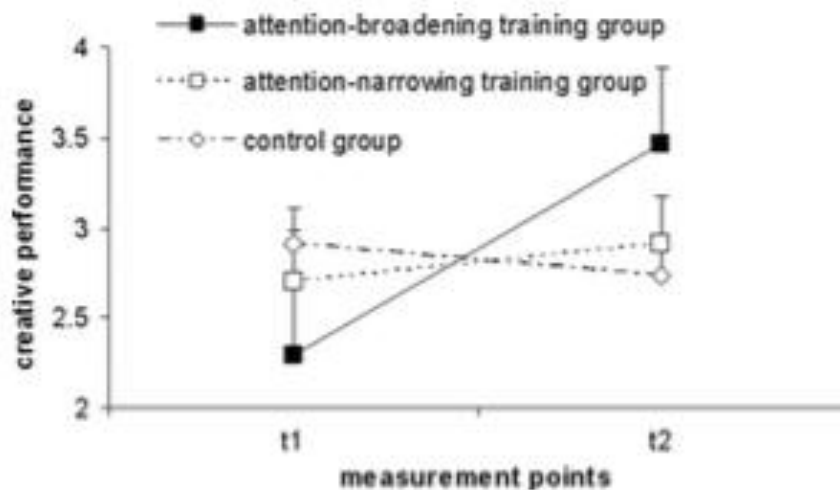
Ford et al. 2009 *High Ability Studies*

# Deliberate play

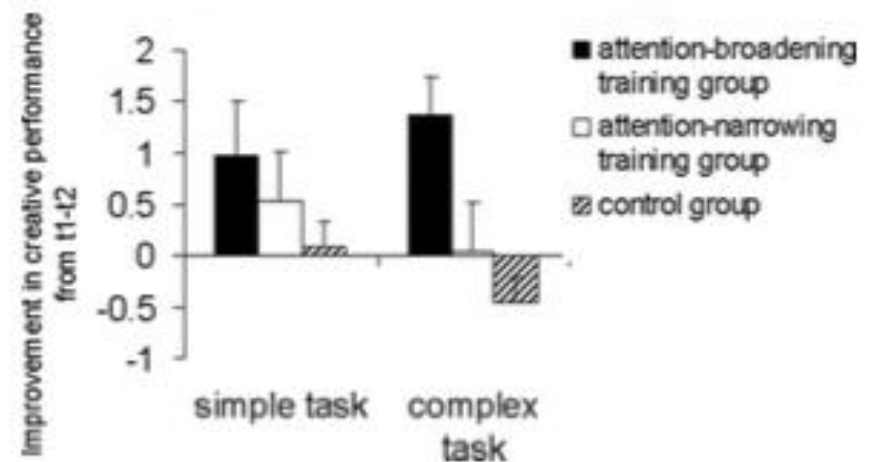


Soberlak and Cote. (2003) J.Appl.Sport Psych.

# Sport training and creativity



**Figure 2.** Development of creative thinking of the attention-broadening and attention-narrowing training groups, and the control group.



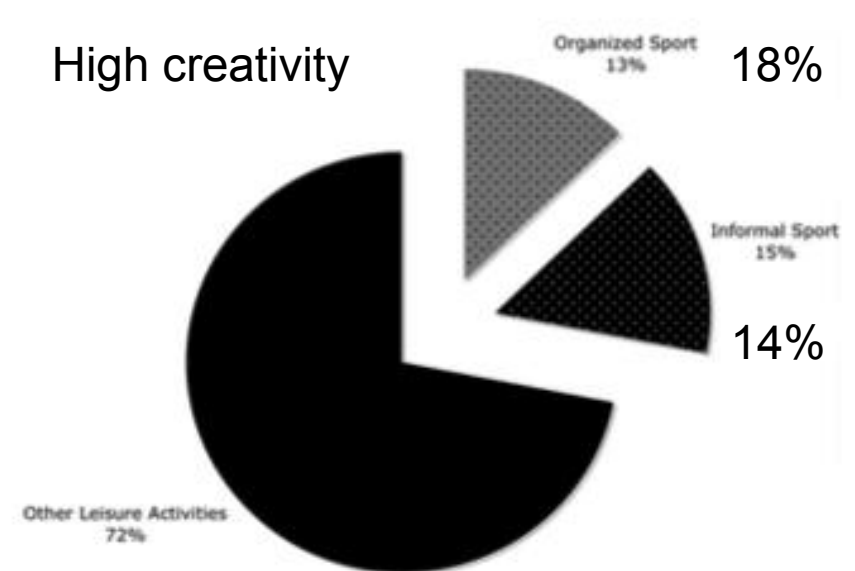
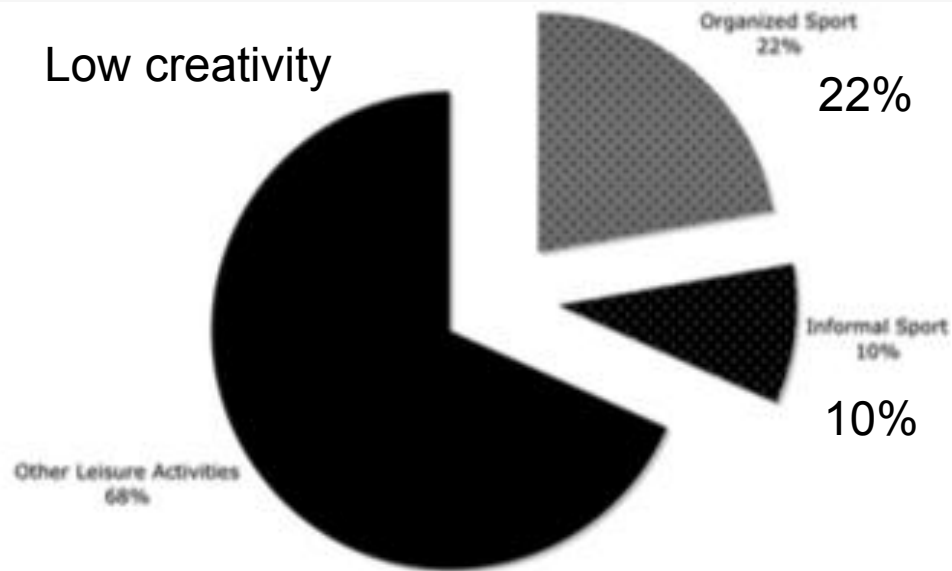
**Figure 3.** Improvement in the mean (standard error) creative performance from t1 to t2 for the three groups differentiated according to task complexity.

One group of children learned ball sports for 6 months and were encouraged to experiment; the other received explicit instructions and correction. Expert judges then assessed creativity in controlled game situations.

Memmert, D. (2007) Can Creativity Be Improved by an Attention-Broadening Training Program? An Exploratory Study Focusing on Team Sports. *Creativity Research Journal*, 19(2)



# Creativity and sport/play



University students took a test of creativity and completed a questionnaire about their youth sport and leisure activity. Creativity was correlated with organized and informal sport participation. Informal sport = “unstructured play-like activity”

Bowers et al. (2014) Assessing the Relationship Between Youth Sport Participation Settings and Creativity in Adulthood. Creativity Research Journal, 26(3)



# Coaching style for PL...



**1**

## **COMMAND:**

The coach tells the player what to do and demonstrates it ("I want you to pass the ball to your partner.").

**2**

## **QUESTION & ANSWER:**

The coach leads with a question and requests an answer from players ("Which one of your teammates could you pass the ball to?").

**3**

## **OBSERVATION & FEEDBACK:**

The coach and players observe an activity and discuss the outcome ("Let's watch and see what happens.").

**4**

## **GUIDED DISCOVERY:**

The coach asks a question and issues a challenge ("Can you show me how you would get the ball past the defender?"). The player then demonstrates how he/she would do it.

**5**

## **TRIAL & ERROR:**

The players and/or coach decide on a challenge, and the players are encouraged to find their own solutions with minimal support from the coach.



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# **Coaching for PL...**

## **1. Non-traditional activities**

**“Do different stuff”**

## **2. Diverse activities**

**“Do a variety of different stuff”**

## **3. 3E's: exploring, experimentation, engagement**

**“Do different stuff different ways”**

# Vickers' "Decision Training"

1. Describe the decision the athlete must make.
2. Select an activity which trains the decision and skill in a competitive context.
3. Perform the activity: the coach uses 7 "decision tools" to structure and provide feedback:
  1. Variable practice
  2. Random practice
  3. Bandwidth feedback
  4. Questioning
  5. Video feedback
  6. Hard-first tactical instruction
  7. Modelling

Vickers, J. (2003) Decision training: an innovative approach to coaching. Canadian Journal for Women in Coaching Online, 3(3).



***Success: “Technical skill  
and tactical  
fundamentals at speed,  
under pressure, while  
fatigued.”***

***But when to train which?***

# “Windows” & capacity

This chart shows how physical and mental qualities have their own window of optimum trainability, on a range from 1 “limited trainability” to 4 “maximum trainability”. For definitions of the physical and mental qualities, see the Glossary. These qualities are applicable to all sports and are vital to physical literacy and overall development.

LTAD Stage	Active Start	FUN	Learn to Train	Train to Train	Learn to Compete	Train to Compete	Learn to Win	Train to Win
Approximate Developmental Stage	Early Child	Mid Child	Late Child	Early Puberty	Mid Puberty	Late Puberty	Early Adult	Adult
<b>Goal setting</b>	<b>Plans, strategies, self-restraint</b>					3	4	3
<b>Strength 2</b>					2	3	4	3
<b>Speed 2</b>					2	4	3	2
<b>Abstract thinking</b>	<b>Tactics, “game sense”</b>				3	4	3	2
<b>Aerobic endurance</b>		2	3	4	4	3	2	1
<b>Mental models</b>		1	3	4	<b>Use &amp; combine skills in sport context</b>			
<b>Speed 1</b>	1	2	3	4	2	1	1	1
<b>Strength 1</b>	1	2	3	4	3	2	1	1
<b>Fine motor skills</b>	1	2	3	4	2	1	1	1
<b>Aiming &amp; hitting</b>	1	2	3	4	3	2	1	1
<b>Visual acuity</b>	2	3	4	1	1	1	1	1
<b>Memory</b>	2	3	4	3	<b>Retain &amp; apply technical skills</b>			
<b>Coordination</b>	2	3	4	3	2	1	1	1
<b>Balance</b>	2	3	4	3	2	1	1	1
<b>Agility</b>	2	3	4	3	2	1	1	1
<b>Gross motor skills</b>	4	4	3	3	2	2	1	1

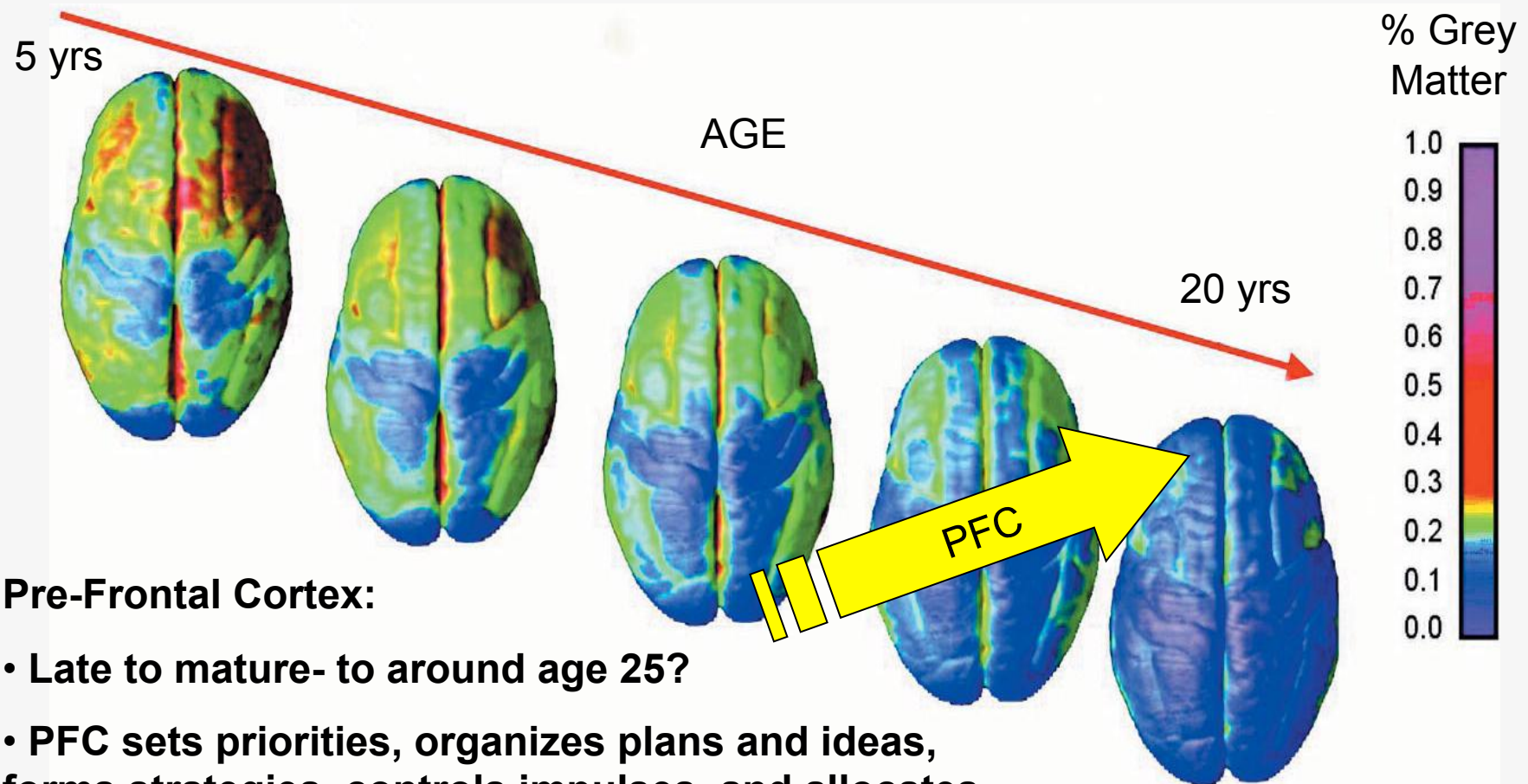
Development of Skills and Abilities Across LTAD Stages – from Biathlon Canada LTADM, 2006



# **“The eyes are windows to the soul”**

- Vickers’ “Quiet eye” – gaze control
- Experts learn what to attend to (filter) so can fix gaze longer on key elements
- Development of “expectancies” with experience – mental maps activated by cues
- Plans: a function of the brain’s prefrontal cortex.  
*And what do we know about the prefrontal cortex?*

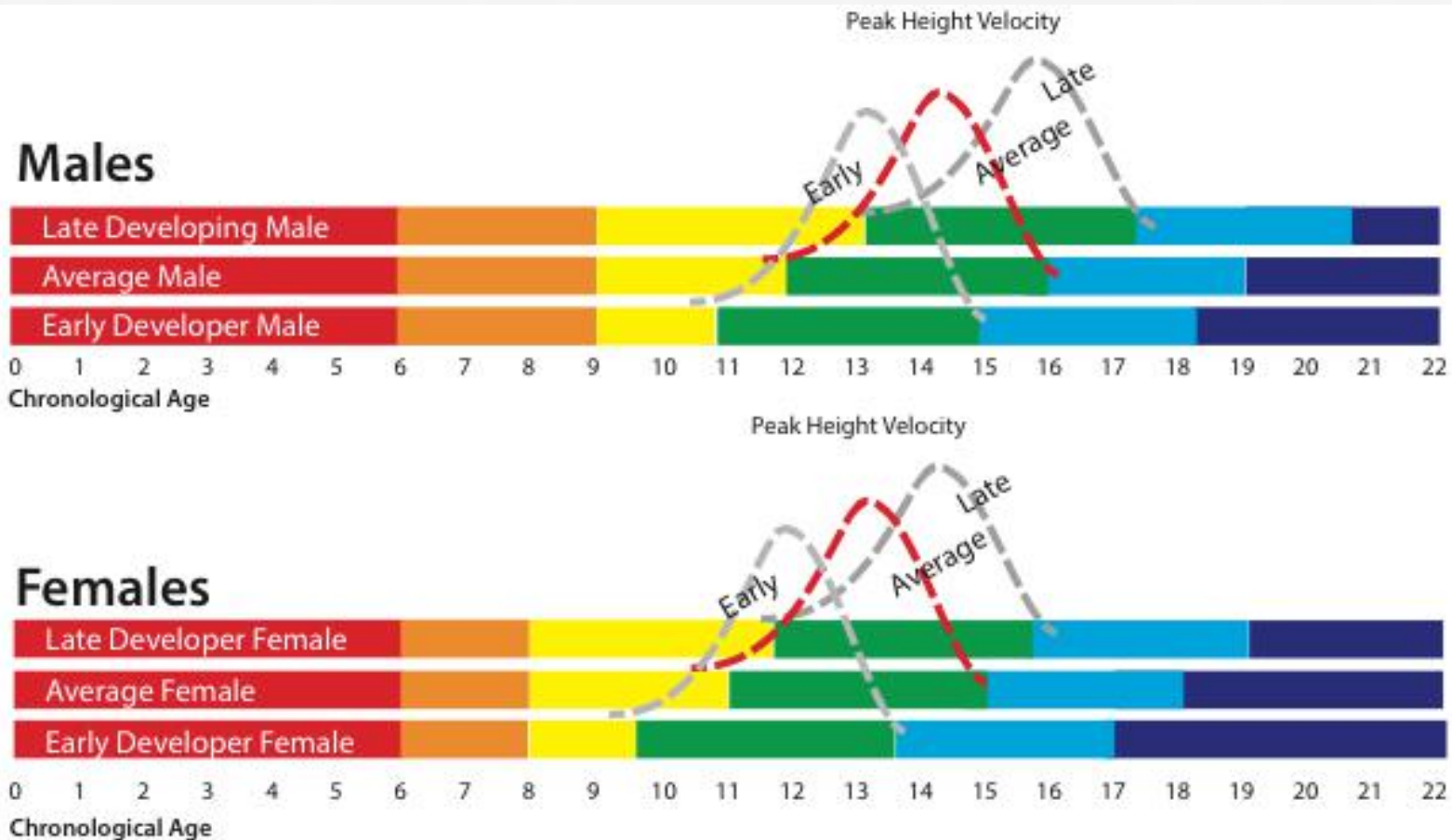
# It matures last.



## Pre-Frontal Cortex:

- Late to mature- to around age 25?
- PFC sets priorities, organizes plans and ideas, forms strategies, controls impulses, and allocates attention: the “CEO of the brain”

# Differences in cognitive development? Markers?



## When to which?

# “Windows” & pedagogy

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Approximate Developmental Stage	Early Child	Mid Child	Late Child	Early Puberty	Mid Puberty	Late Puberty	Early Adult	Adult
Goal setting	Creativity: question, model, vary & adapt					3	4	3
Strength 2	Cognitive overload: time, player, object					3	4	3
Speed 2						4	3	2
Abstract thinking	Hard-first tactical, question, model					3	4	2
Aerobic endurance		2	3	4	4	3	2	1
Mental models		1	3	4	Repetition, random, bandwidth, question			
Speed 1	1	2	3	4	2	1	1	1
Strength 1	1	2	3	4	3	2	1	1
Fine motor skills	1	2	3	4	2	1	1	1
Aiming & hitting	1	2	3	4	3	2	1	1
Visual acuity	2	3	4	1	1	1	1	1
Memory	2	3	4	3	Repetition, variable, bandwidth			
Coordination	2	3	4	3	2	1	1	1
Balance	2	3	4	3	2	1	1	1
Agility	2	3	4	3	2	1	1	1
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Development of Skills and Abilities Across LTAD Stages – from Biathlon Canada LTADM, 2006

# **Bruyninckx's "Cogitraining"**

**(this is not an endorsement)**

- Soccer training program - Belgium
- "Brain centered-training" "We see with our brain not our eyes"
- Repetition and continuous synchronized multi-player movement
- Cues for pattern recognition
- Questioning
- Cognitive load/overload

<file:///localhost/Users/pauljurbala/Desktop/CogiTraining - A new football concept.mp4>





**LTAD is a framework  
for the optimal  
acquisition,  
development and  
expression of physical  
literacy in sport.**

# **Thank you!**

- Contact me!
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