American Development Model

A plan for Long-Term Athlete Development

NATIONAL PLAYER DEVELOPMENT PROGRAM

American Development Model

USA Hockey and the National Hockey League have a mutual interest in the development of American hockey players. We are making an investment in the future.

“The habits we develop in becoming good are often the ones that prevent us from becoming great”

- Tiger Woods

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"Best way to predict the future is to create it yourself"

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Where We Are Now

Young athletes under-train, over-compete.

Adult competition models superimposed on young athletes.

Training in early years focuses on outcomes (winning) rather than processes (optimal training).

Chronological age dominates training rather than biological age.

The "critical" or "sensitive" periods of accelerated adaptation to training are not utilized by coaches

Under development between 6-16 years cannot be fully overcome (athletes will never reach genetic potential).

The best coaches are encouraged to work at elite level

Limited coaching education provided to those working at the youngest age groups. (CEP Level 1)

Parent's education is neglected with regards to long-term athlete development (nutrition, regeneration, maturation and psycho-social development, etc...)

Lack of the integration of sport science, sport medicine and sport-specific technical-tactical activities

Currently we draft players at the age of 10.

Really?

Squirt AAA
Squirt AA
Squirt A
House/Rec

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Who would you pick?

All the same age

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Team Selection at Squirt

Try outs.
On-ice.
Performance on that day.
Limited knowledge base of evaluators.

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Team Selection at Squirt

Try outs.

On-ice.

Performance on that day.

Limited knowledge base of evaluators.

WASTE OF TIME!

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Team Selection

STAND UP PLEASE ☺

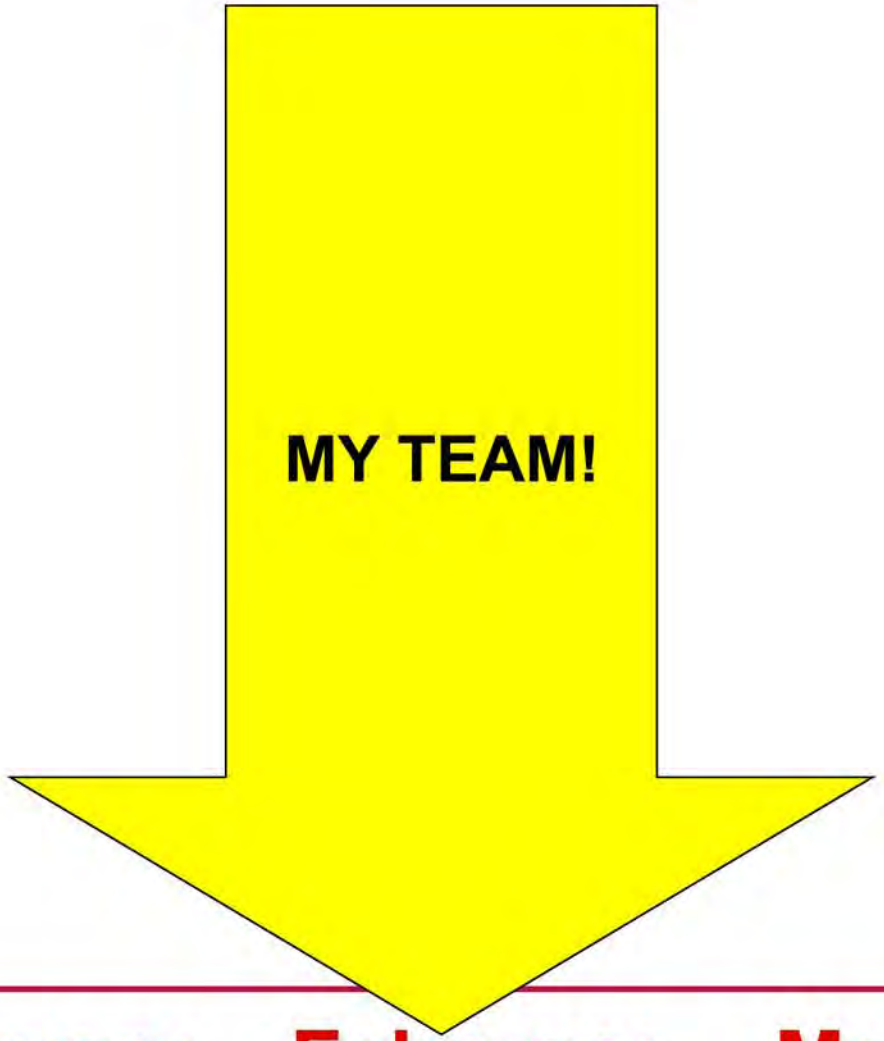
American Development Model

PLEASE HAVE A SEAT IF YOU ARE BORN IN…

December
November
October
September
August
July
June
May
April

January **February** **March**

American Development Model



January February March

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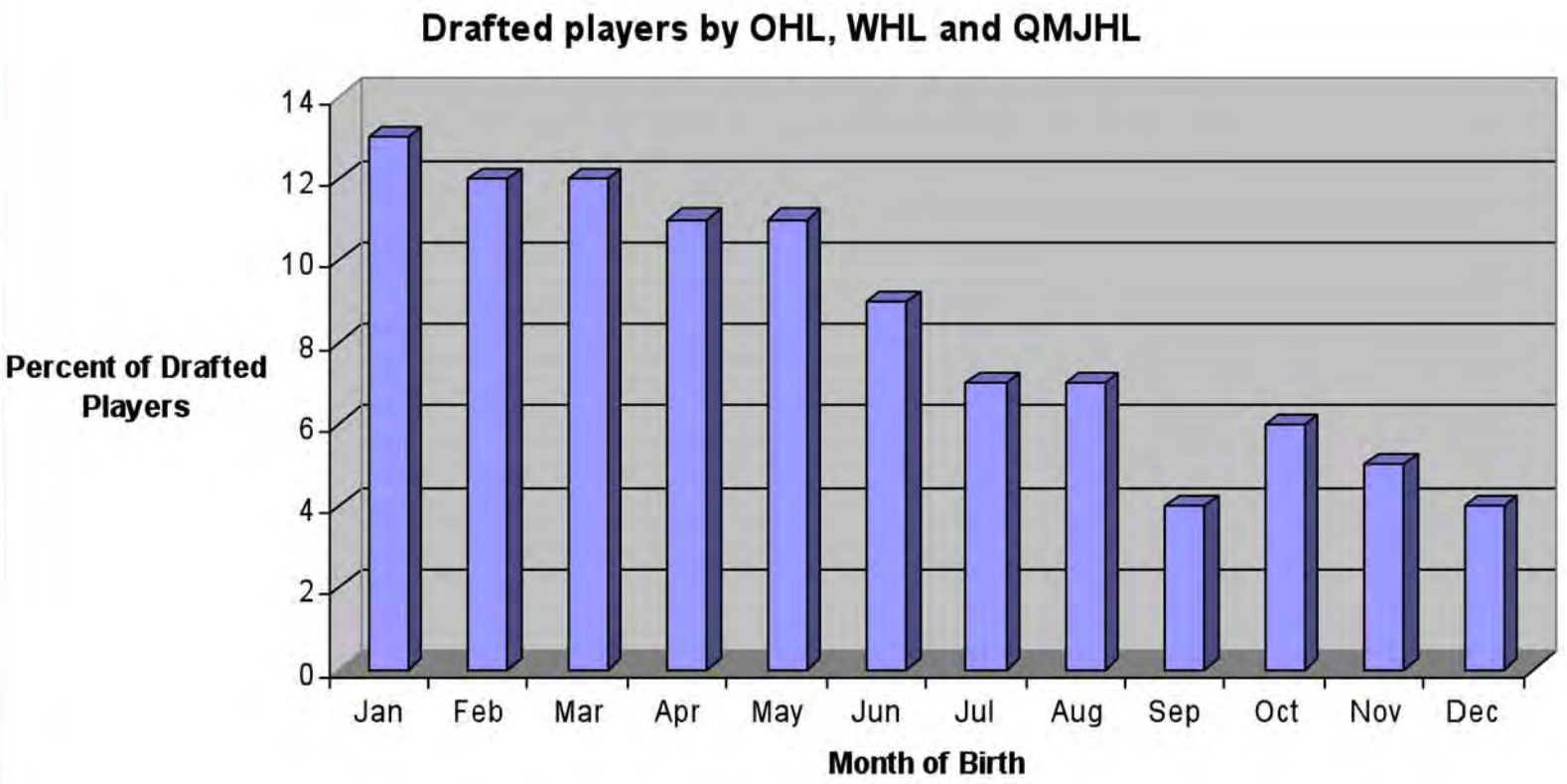
How Much Talent Has Our System Eliminated by 16?



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To Play Violin

...How many <u>hours</u> of practice for one recital?

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To Play Violin

- Alone on stage

Predetermined Outcome

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In A Hockey Game

Teammates
Other Team
Officials
Outcome is unpredictable

It's a sport!

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Where would you start?

$$\frac{d}{dx} f(x) = \lim_{\Delta \to 0} \frac{f(x+\Delta) - f(x)}{\Delta}$$

OR

2 + 2 = 4

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Where should we start?

Win the gold

OR

Learn fundamental movement and sports skills

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But…

Games are more fun than practices!

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But…

Games are more fun TO WATCH than practices!

… just ask MOM and DAD.

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Games vs. Practices (10 & Under)

Game

50 minute game / 2 teams

= 5 minute WARM UP

= 10 minutes of stop time

= 35 minutes / 2 lines

= 17.5 minutes / 10 athletes

= 1.75 minutes of "Puck" time.

Practice

50 minute ice time

5 minute WARM UP

5 minute COOL DOWN

5 minute EXPLAIN

= 35 minutes of "Puck" time.

NATIONAL TEAM

WE ARE NOT WORLD CHAMPIONS

WORLD CHAMPIONS HAVE DONE THIS!

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HOW DO WE FIX THIS?

WE HAVE THE OPPORTUNITY TO MAKE SOME CHANGES…

LONG-TERM ATHLETE DEVELOPMENT MODEL (LTAD)

American Development Model

What is LTAD?

Integrates training, competition and recovery programming with relation to biological development and maturation

Offers equal opportunity for recreation and competition

Is participant/athlete centered, coach driven, and parents, officials, administration, sport medicine & sport science supported

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The 10 Key Factors Influencing LTAD

1. Ten year rule
   - It takes 10 years of extensive practice to excel in anything ! H. Simon Nobel Laureate
   - 10 year or 10 000 hour rule (Ericsson and Charness, 1994 and Salmela et al., 1999)

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The 10 Key Factors Influencing LTAD

2. FUNdamentals

- A, B, C, Speed
- Fundamental Movement Skills (FMS)
  - Gymnastics, Swimming, Running, Gliding
- Fundamental Sports Skills (FSS)
  - Throwing, Striking, Kicking
- FMS + FSS = Physical Literacy

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The 10 Key Factors Influencing LTAD

3. Specialization

- Early vs. Late Specialization
- Reduced time spent on broad based physical literacy
- Peak at 16
- Increased injuries
- Early burnout, early retirement

- Late specialization athletes have included,
  - Wayne Gretzky, Chris Drury, Bill Guerin, Rick Nash, Natalie Darwitz, Angela Ruggiero

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The 10 Key Factors Influencing LTAD

Currently, we first try to make a player and then we want to make an athlete out of the player!

Reverse the Procedure

We have to make an athlete first and then make a player out of the athlete !

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The 10 Key Factors Influencing LTAD

4. Growth, Development, and Maturation

- Biological Age vs. Chronological Age

13 year old female athletes

14 year old male athletes

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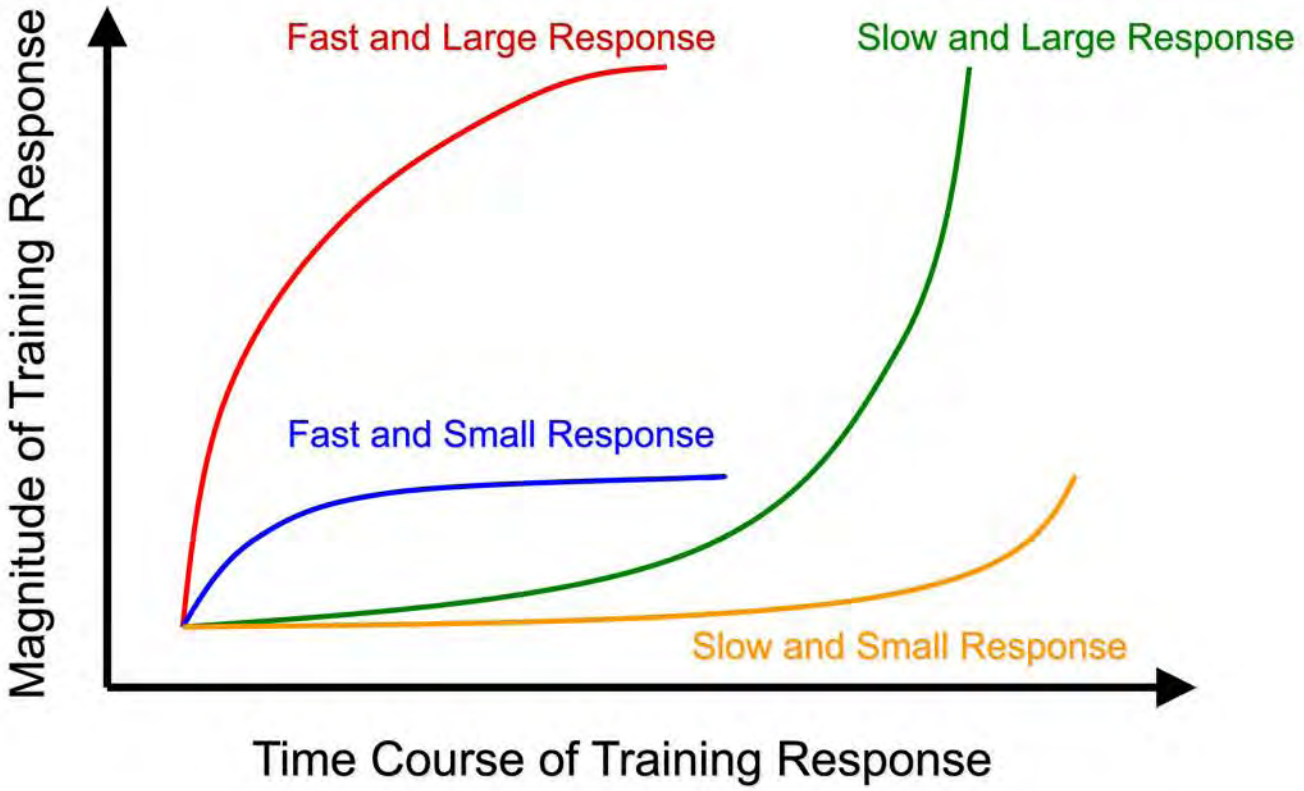
The 10 Key Factors Influencing LTAD

4. Growth, Development, and Maturation



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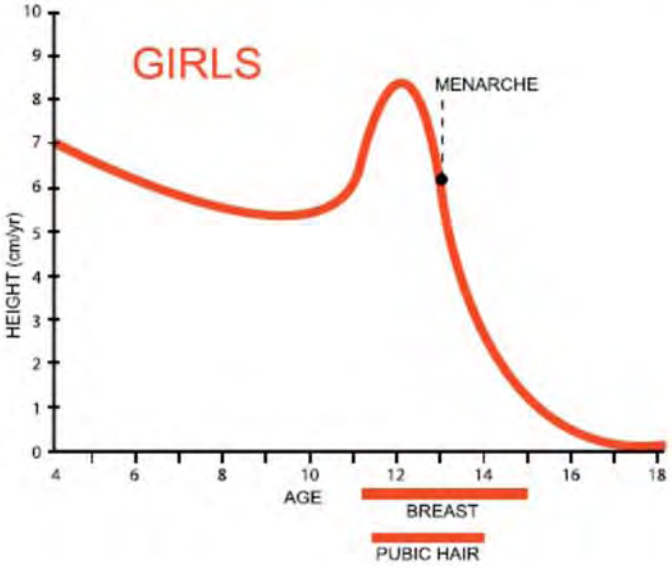
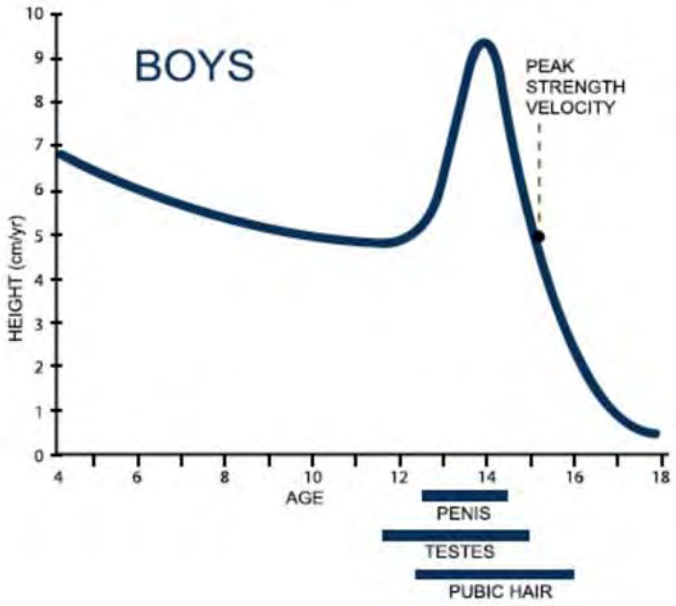
The 10 Key Factors Influencing LTAD

4. Growth, Development, and Maturation

- Average children grows 2.5 inches or 5 cm per year.
- Gain about 5 lbs. or 2.3 kg.
- Until they hit their growth spurt.
- Leg length as a rule reaches its peak first 6 to 9 month ahead of trunk length.
- Shoulder and chest breadth are the last to reach their peak.





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The 10 Key Factors Influencing LTAD

4. Growth, Development, and Maturation

- Measuring and interpreting PHV (How to PHV)
- At every birthday mark the growth in cm, how many centimeters is the growth from last birthday?
- Age 9 or 10 = measure it every 3 month (Malina)
- Always in the morning for reliable measurements
- After the on-set of PHV measure it every 6 to 8 weeks
- Measure athlete standing

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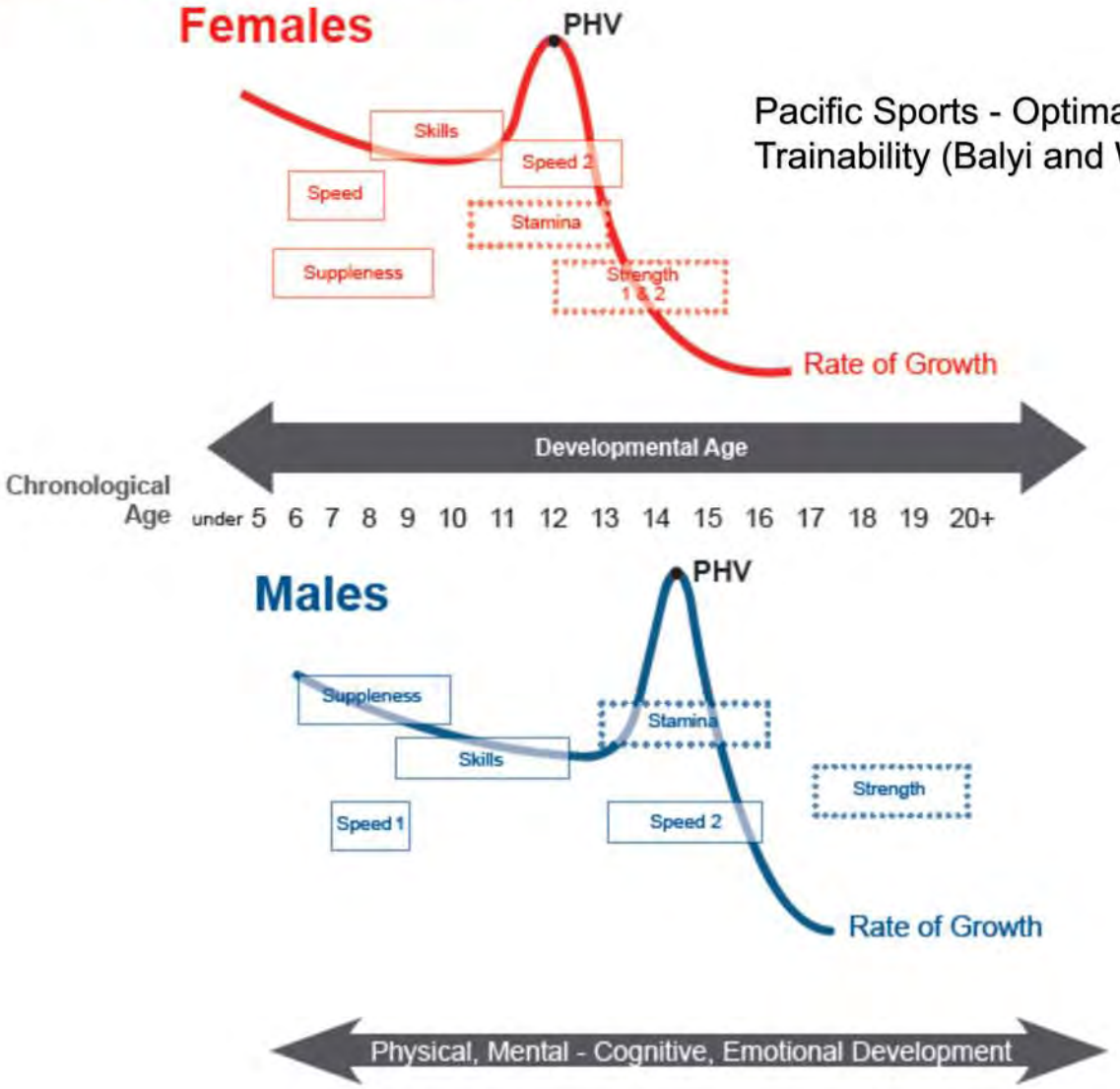
The 10 Key Factors Influencing LTAD

5. Windows of Trainability



Pacific Sports - Optimal Windows of Trainability (Balyi and Way 2005)

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Stamina (Endurance)
  - Strength
  - Speed
  - Skill
  - Suppleness (Flexibility)

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Stamina (Endurance)
    - Always trainable
    - Critical window of accelerated adaptation to aerobic training begins with the onset of PHV
    - Age 10 – 11 for females
    - Age 12 - 13 for males
    - Monitoring maturation to identify onset

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Strength
    - Always trainable
    - Critical window of accelerated adaptation to strength training
    - Window 1 for females immediately after PHV
    - Window 2 for females with the onset of menarche
    - 12 – 18 month after PHV for males

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Speed
    - Always trainable but declines with age
    - Critical window of accelerated adaptation

    to speed training:
    - Males:

    - Window 1: 7 - 9 years of age

    - Window 2: 13 – 16 years of age
    - Females:

    - Window 1: 6 – 8 years of age

    - Window 2: 11 – 13 years of age
    - (Chronological age)

American Development Model

The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Speed
  - Window 1 is agility, quickness window.
    - Change of direction, linear, lateral and multi directional speed
    - Segmental speed
    - Duration of intervals less then 5 seconds
  - Window 2 is anaerobic lactic power
    - and capacity window
    - Linear, lateral, multi directional and chaotic speed
    - Duration of intervals 5 – 20 seconds

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Skill
    - Always trainable but significantly declines with age
    - Window of accelerated adaptation to motor coordination
    - Age 8 – 11 females
    - Age 9 – 12 males
    - Early and late specialization sports
    - The importance of transitional skills

American Development Model

The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Skill - Research
  - "Most authors agree that the sensitive skill learning period is between 9 and 12 years."

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The 10 Key Factors Influencing LTAD

5. Windows of Trainability

- Five 'S' of Training and Performance (Dick 1985)
  - Suppleness (Flexibility)
    - Always trainable but significantly declines with age
    - Optimal trainability 6 – 10 (Dr. K. Russel)
    - Special attention during PHV

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The 10 Key Factors Influencing LTAD

6. Mental / Cognitive / Emotional Development

- **Basic Characteristics**
  - **Performance Capabilities and Limitations**
  - **Implications to the Coach**

If you want to teach Latin to Dean, you have to know Latin and you have to know Dean.

If you want to teach hockey to Dean, you have to know hockey and you have to know Dean

We know hockey well BUT we do not know dean from age 8-9 to 16-17 PERIOD!!!

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The 10 Key Factors Influencing LTAD

7. Periodization and Training Principles

- **Optimal Sequencing and Integration of training, competition and recovery activities throughout periods, phases and mesocycles so the athletes reaches an optimal sport's form for the decisive competitions of the year.**

FIGURE 2. An example of bi-cycle, or double peaking periodized plan

Month	1	2	3	4	5	6	7	8	9	10	11	12
Periodization (phases)	Preparatory 1			Competitive 1			T1	Preparatory 2		Competitive 2		T2
	General Prep.	Specific Preparatory		PC	Competitive	U	M	Gen. Prep.	Specific Preparatory	PC	Comp-etitive	U

Legend: T= transition phase: the first one of only two weeks, while the second one (Transition 2) is 4–5 weeks long
PC = pre-competitive, or exhibition competitions/games/matches
U = unloading/tapering for the major competition of the year
M = maintenance of a 40–50% of the previous training load

Olympic Coach – Summer 2004 Vol.16, #2

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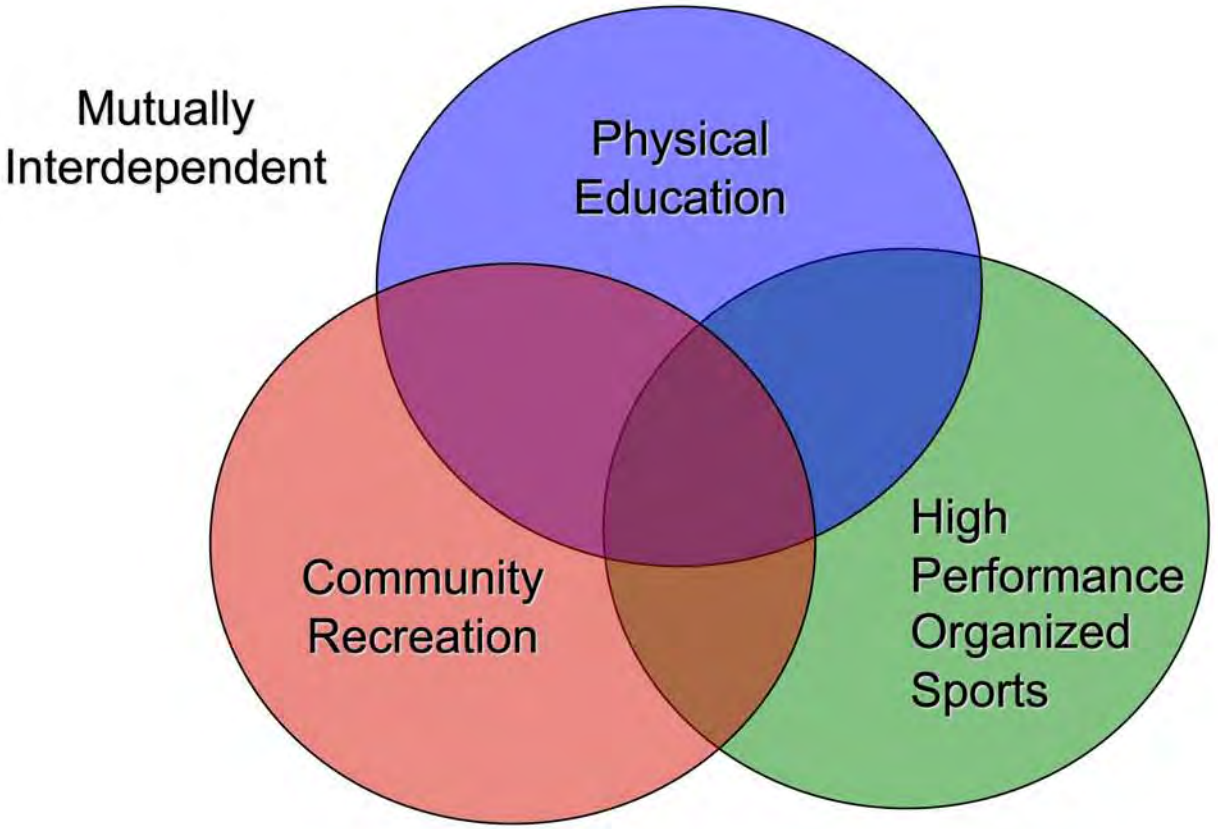
The 10 Key Factors Influencing LTAD

8. System Alignment and Integration



Separate Development is Ineffective and Expensive

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The 10 Key Factors Influencing LTAD

9. The System of Competition (Calendar planning)

- Does the coach have enough time to develop the athlete before the competition season begins?
- Does the actual system of competition favour athlete development?
- Does the coach have time to improve the performance capacities (Phys; Tech; Tact and Mental) of the athletes between key competitions?
- Dictated schedule or Selective schedule?
- How can you develop talent when you compete more than you train?

The system of cometeition makes or breaks the athlete between the FUNdamentals and Train to Train Stages

American Development Model

The 10 Key Factors Influencing LTAD

10. Continuous improvement

- Continued evaluation of the LTAD research
- Critical analysis of decisions and implemented actions
- Study of current literature
- Be open to change

High Performance = Accelerated Rate of Change

LTAD Stages

Training to Win
19+ Junior, NCAA, NHL

Training to Compete
Junior, NCAA

Learning to Compete
18 and Under Midgets

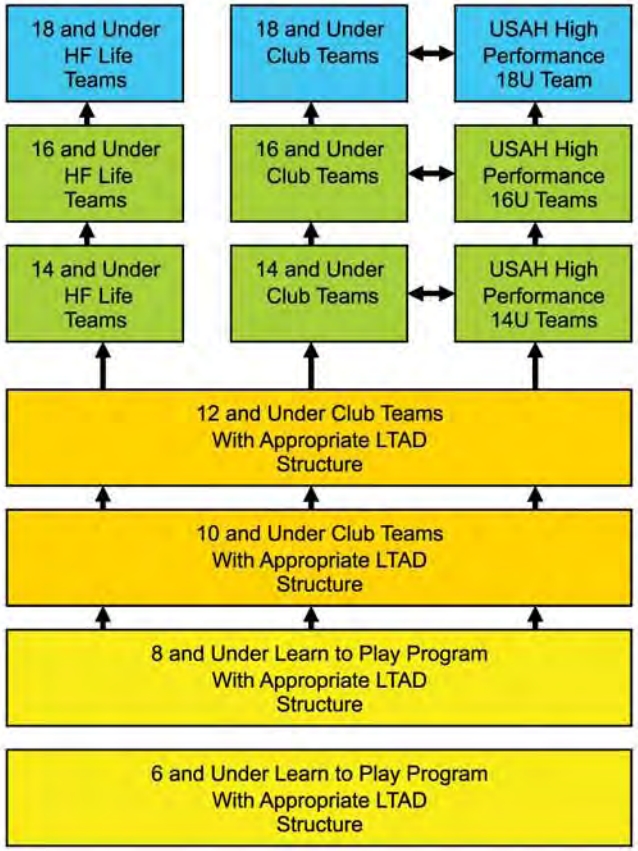
Training to Train
16 and Under Midgets
14 and Under Bantams

Learning to Train
12 and Under Peewee
10 and Under Squirt

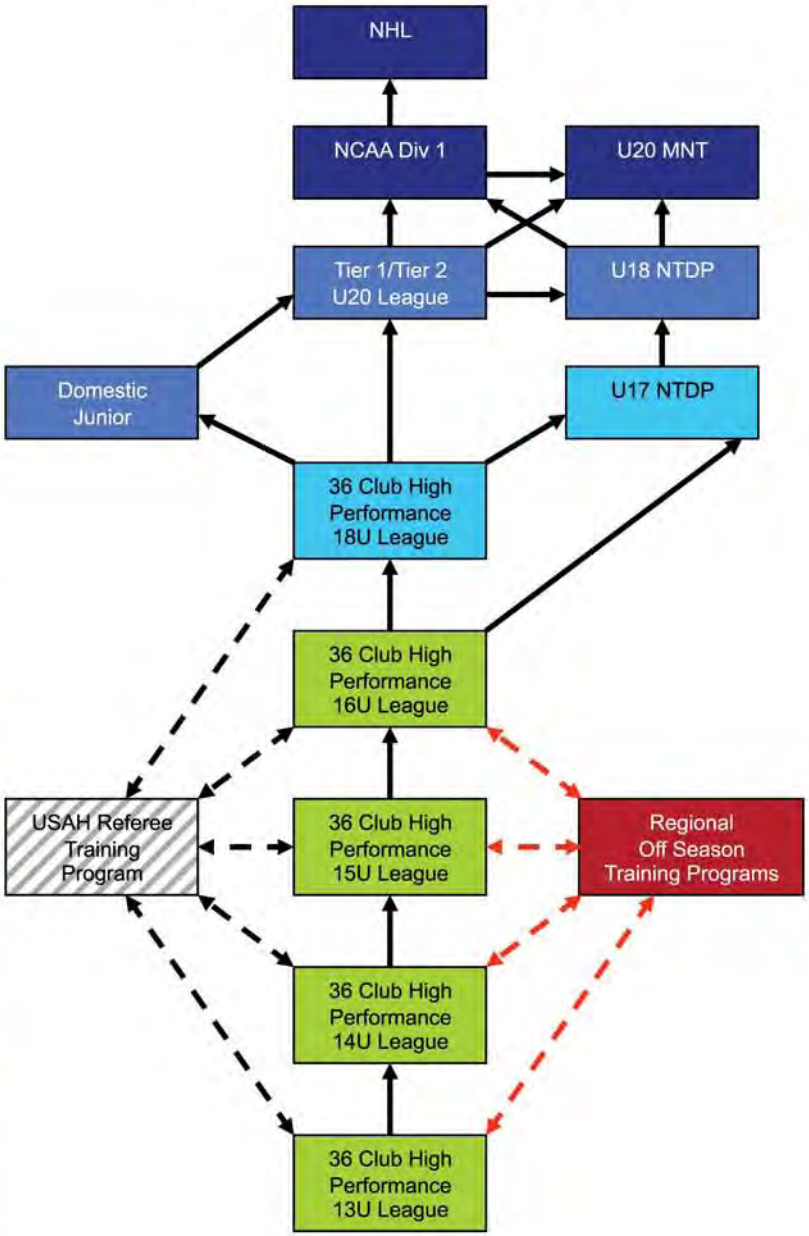
FUNdamentals
8 and Under Mites
6 and Under Mites

The American Development Model

Club Structure



High Performance Structure



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High Performance Clubs – HPC's

National High Performance League

Teams at 18U, 16U, 15U, 14U and 13U

Appropriate structure for developmental ages - LTAD

HPC registration not team registration

Regional play and national showcases

8 team final at each level

Referee development

Increased coaching and club development

Player monitoring for LTAD stages and training

Take advantage of "optimal windows of trainability"

Proper periodization of training, competition and recovery

American Development Model

LTAD - Developmental Program

- Appropriate structure for all levels of play within USAH based on current sports science
- Targeted 12U, 10U and 8U program within the HPC's
- Focus on athlete development and retention
- Player monitoring for LTAD stages
- Increased coaching education for appropriate "optimal windows of trainability"
  - – a 9 year old is only 9 once!
- Proper periodization of training, competition and recovery

American Development Model

Regional High POST Program

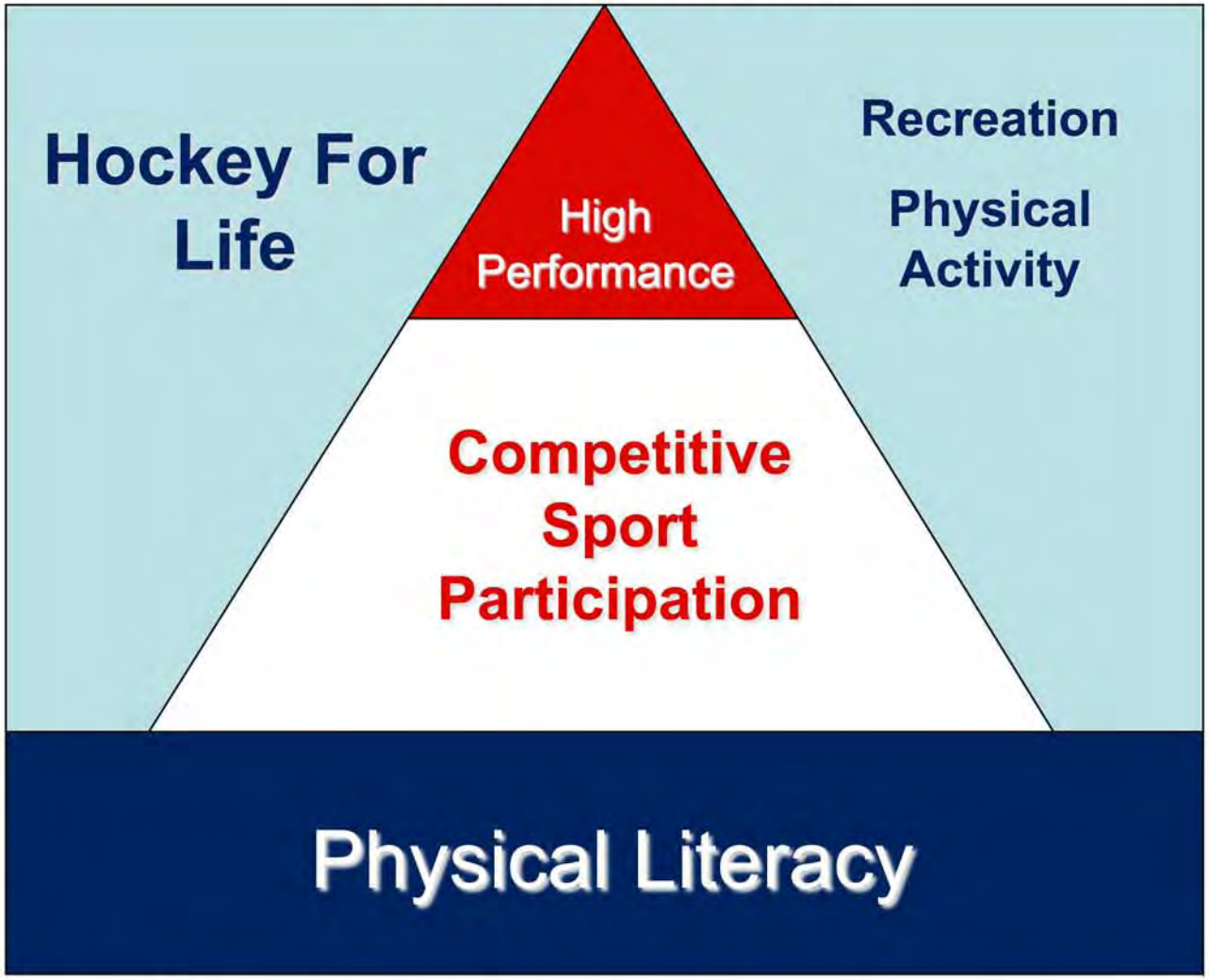
- Provides additional high performance training and education to players and coaches
- Provides HPC interaction with National Team, Collegiate and Professional coaches
- Adheres to LTAD periodization
- 10 year, 10,000 hour training principle at appropriate stage of development.

"The difficulty lies not in the new ideas, but in escaping from the old ones.."

- John Maynard Keynes

American Development Model

LTAD INCLUDES



100% of our USA Hockey Population

American Development Model

8 STAGES of LTAD (Ice Hockey)

Active Start Stage - FUNdamental movement skills

FUNdamental Stage - Developing ABC's

Learning to Train - Learning fundamental sports skills

Training to Train - Building the "engine" and consolidate sport skills

Learn to Compete - Optimizing "engine" and refine sport skills

Training to Compete - Optimizing "engine" and refine sport skills and performance

Training to Win - Maximizing "engine", skills and performance

Hockey for Life - Recreational and Adult Hockey

Active Start 0-6
FUNdamentals 8 and Under Mites 6 and Under Mites
Learning to Train 12 and Under Peewee 10 and Under Squirt
Training to Train 16 and Under Midgets 14 and Under Bantams
Learning to Compete 18 and Under Midgets
Training to Compete Junior, NCAA
Training to Win 19+ Junior, NCAA, NHL
Hockey for Life

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How do you eat an Elephant?

…One bite at a time.

American Development Model

Why is LTAD Important to Our NGB?

New approach /philosophy towards improvement

Cash-in on “Windows of Trainability”

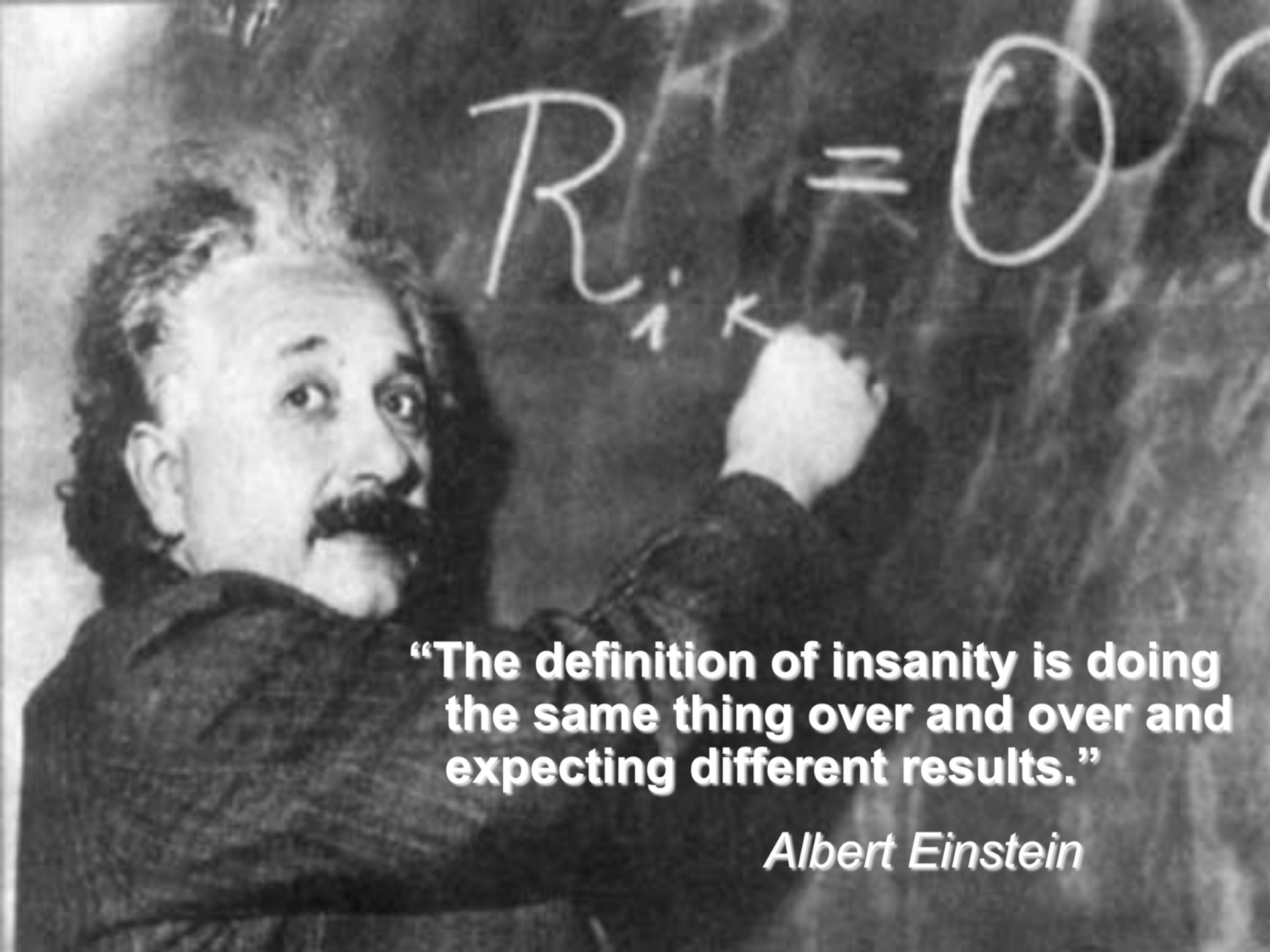
Means to facilitate optimal development of athletes

Increase player retention

Full sport system alignment and integration

Better relationship with the National Hockey League

Not just world class…but World Leading!


"The definition of insanity is doing the same thing over and over and expecting different results."
Albert Einstein