Long-Term Athlete Development 101
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Sport Canada
Canadian Sport Centres
Overview

- Can. Sport Policy 2 LTAD - Dan
- LTAD - Istvan
- 10 Factors - Steve
- 7 Stages - Charles
- LTAD AWD - Colin
The University of Victoria
National Coaching Institute

45 hours

By Dr. Istvan Balyi
FAT NATION
State of the Nation

- Policy: C-
- School: F
- Community Involvement: C
- Family: C-
- Physical Activity: C+
FAT Nation

Obese Adults

1978-79 = 14 %
2004-05 = 23 %

What about the kids?

It our problem!

Age = % Obese

2 to 17 = 8 %
18 to 24 = 11.4 %
25 to 24 = 20.5 %
35 to 44 = 20.4 %
45 to 54 = 29.7 %
55 to 64 = 39.4 %
65 to 74 = 24.6 %
75 + = 23.6 %
The Big Picture

• The health and well-being of the nation and medals won at major games is a simple by-product of an effective sport system
Insanity

doing the same thing over and over and expecting different results
Canadian Sport Policy (2002)
Four Policy Goals

- Enhanced Excellence
- Enhanced Participation
- Enhanced Capacity
- Enhanced Interaction
FPT Ministers’ Conference (2004)
Record of Decisions re: Excellence

- Athlete performance and sport system targets
- Canadian Sport Review Panel
- Long Term Athlete Development model
- Funding for high performance sport
- Communication Strategy re: benefits
FPT Ministers’ Conference (2005)
Record of Decisions

• Implement generic template via sport-specific models
• Prepare a plan/strategy for full development and implementation
• Establish links with the Joint Consortium on School Health
• Develop a communication plan
Knowledge Base = Physical Literacy

These three factors are mutually interdependent. Separate development is ineffective and expensive.

Physical Education
School Sports

Recreation
Physical Activity

High Performance - Organized Sport

Knowledge Base = Physical Literacy
What is your athlete development model?

Where did it come from?

What should it be in the 21st century?
Long-Term Athlete Development Models

Four Stage Models

- Child: Basic
- Juvenile: Intermediate
- Junior: Advanced
- Adult: Elite

Filin 1964; Tschiene 1970; Hess 1971; Frey 1978; Thiessen-Seibmann 1959

Balyi 1995
Bompa 1995
Drabik 1996
Current Development Model?

- National
- Province
- Club
- Community
Long-Term Athlete Development

- **Other Sports - Active For Life**
- **Recreation**
  - **Excellence**
    - Training to Win
    - Training to Compete
    - Training to Train
  - **Sport for All**
    - Learning to Train
    - Physical Literacy
      - FUNdamentals
      - Active Start
    - Life-long Physical Activity
      - Active for Life
LTAD is

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

- Inclusive - equal opportunity for recreation and competition

- Athlete centred, coach driven and administration, sport science and sponsor supported
What is LTAD?

• LTAD is not just another plan (for the files)

• LTAD is a philosophy

• LTAD is a vehicle for change, culture change in sport
What is LTAD?

LTAD...

• Identifies the current gaps in the sport system and provides guidelines for problem solving

• Is a guide for planning for optimal performance for all stages of athlete development

• Is a framework for full sport system alignment and integration

• It is designed on empirical / practical coaching experiences and on scientific principles
Shortcomings / Consequences

- Over-competition and under-training
- Adult training and competition programs superimposed on children (more is not better)
- Peaking by Friday
- Chronological age versus developmental age is used
- Missing the ‘windows’ of accelerated adaptation
- Physical literacy not taught - only single sporting activities are taught
Shortcomings / Consequences

- Knowledgeable coaches work with elite athletes
- Parents are not educated about LTAD
- Needs of athletes with a disability not well understood
- No talent identification system (selection by competition - is not TID)
- No system integration (schools, community and competitive)
Sport Specific LTADs:

What are the ages for the stages?

When is the making and breaking of an athlete?
10 Key Factors Influencing LTAD
(Balyi, Ross & Way - 2005)

1. Ten year rule
2. FUNdamentals
3. Specialization
4. Developmental Age
5. Windows of Trainability
6. Mental / Cognitive / Emotional Development
7. Periodization Principles
8. System Alignment and Integration
9. The System of Competition
10. Continuous improvement
Factor 1
10 Year Rule

10 years

10 thousand hours

10 %
Factor 2 FUNdamentals
The FUNdamentals

Agility  Balance  Co-ordination  Speed  Jumping  Climbing
Walking  Skating  Hopping  Swimming  Skipping  Balance
Throwing  Dribbling  Kicking  Throwing  Hitting  Catching
Factor 3 - Specialization

Early Sports
- Gymnastics
- Rhythmic Gymnastics
- Figure Skating
- Diving
- Swimming (age 8?)
- Snowboard Half-Pipe
- Others?

Late Sports
- All other sports are late specialization sports
- Specialising early in a late specialization sport contributes to one sided preparation, injuries, early burnout and early retirement
There are no shortcuts! No excuses

- Peaking by Friday
- As soon as we start to train = we train to win
- Process and not outcome!
- Specializing early in late specialization sports
Factor 4
Developmental Age
How old is a 14 year old?
14 years old  60kg., 40 kg., and 50 kg.
Figure 29  Radiographs of two boys both aged 14:0 years: (left) bone age 12:0 'years'; (right) bone age 16:0 'years'
How old is a 14 year old?
Factor 5
Windows of Optimal Trainability

• Accelerated adaptation to training
• “Critical” or “Sensitive” Periods
• The 5 S’s of training is a good framework to overview the windows
The Five S’s of Training and Performance

(Dick, 1985)

• Stamina (Endurance)
• Strength
• Speed
• Skill
• Suppleness (Flexibility)
The Trainability of the Five S’s

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)
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 alactic power and capacity window
- Linear, lateral, multi-directional and chaotic speed
- Duration of intervals 5 – 20 seconds
Missing the windows of trainability?

• Skill and fitness deficit!
• Athletes will never reach genetic potential!
Reference
Point of Planning

Onset of PHV

PHV

Do you measure this now?
Factor 6
Physical, mental-cognitive and emotional development

Characteristics and its implications

General Consequences:
Performance Capabilities and Limitations
Implications to the Coach
Factor 7
Periodization

Integration and Sequencing of Sport Science, Sport Medicine and Sport-Specific Technical-Tactical Activities
Competition is a good servant but poor master!
Examples...
- British Swimming
- The LTA $360\text{ m}$
- Eriksson – after Football World Cup
- Woodward – Rugby Union 2004
Factor 9
System Building, Alignment and Integration
Coaching
Competition
Facilities and Equipment
Sport Science
Talent Identification and development
Ancillary Support and Services
Funding
Officials’ Development
Training Support
Daily Living Support

Stages of LTAD
- Active for Life
- Training to Win
- Training to Compete
- Training to Train
- Learning to Train
- FUNdamental
- Active Start
Factor 10  Continuous Improvement

- Modernization of the Canadian sport system
- Education, health and sport / physical activity alignment
- All aspects of LTAD need research
- Implementation
- KAIZEN
High above the hushed crowd, Rex tried to remain focused. Still he couldn’t shake one nagging thought: *He was an old dog and this was a new trick!*
Seven Stages of Long-Term Athlete Development

- Active Start
- FUNdamental
- Learning to Train
- Training to Train
- Training to Compete
- Training to Win
- Active for Life
Active Start Stage
Chronological Age
Males and Females: 0-6

Fundamental Movements
Gymnastics
Swimming
Running
(Wheeling)
FUNdamental Stage
Chronological/Developmental Age
Males 6-9 and Females: 6-8

Fundamental Movements
Skills +
Learning to Train Stage
Chronological/Developmental Age
Males: 9-12 Females: 8-11

Fundamental Sport Skills
Physical Literacy

First 3 stages of LTAD
Developmental Age - before onset of PHV

Fundamental Movement skill + Fundamental Sport Skills = Physical Literacy = Excellence & Participation
Can’t Catch? – Won’t play!

Adapted From Mike Jess, University of Edinburgh
Training to Train
Developmental Age - onset of PHV
Males: 12-16  Females: 11-15

Building engine and sport specific skills
Training to Compete
Chronological Age
Males: 16-23 +/-  Females: 15-21 +/-

Optimizing engine and
sport / event / position skills
Training to Win
Chronological Age
Males: 19 +/-  
Females: 18 +/-

Maximizing engine
and
event / position
skills
PODIUMS
Active for Life
Enter at any age

Healthy Life-long Physical Activity
Long-term Athlete Development for Athletes with a Disability
Why LTAD for AWADs

- AWADs doing well in international competitions
  - But high performers are aging
  - Not clear where the next generation of athletes will come from
  - Greater international competition from developing countries
  - Too small a proportion of persons with a disability are physically active
Responsibility for Sport for Athletes with a Disability

Athletics Canada

- National Sport Federation
  - AB Sport
    - Sport for AWADs

Canadian Wheelchair Basketball Association

- Sport Specific AWAD Fed.
  - Sport for AWADs

Canadian Wheelchair Sport Association

- Disability Sport Federation
  - Sport for AWADs
Two more stages
Coaching
Competition
Facilities and Equipment
Sport Science
Talent Identification and development
Ancillary Support and Services
Funds
Officials’ Development
Training Support
Daily Living Support
System Integration

Stages of LTAD
- Active for Life
- Training to Win
- Training to Compete
- Training to Train
- Learning to Train
- FUNdamental
- Active Start
Coaching at each stage

- Active for Life: No coaching, but many opportunities for activity.
- Training to Win
- Training to Compete
- Training to Train
- Learning to Train
- Fundamental
- Active Start
Competition at each stage

Stages of LTAD

- Active for Life
- Training to Win
- Training to Compete
- Training to Train
- Learning to Train
- FUNdamental
- Active Start

No competition
Critical Issues

- National Sport Federations need to include AWAD-LTAD in their thinking and their plans
- AWAD-LTAD is not an add-on!
- System integration is more critical for AWADs than for able bodied
- Much more research is needed to fine-tune LTAD for AWADs
Change Happens
They Keep Moving the Cheese

Anticipate Change
Get Ready for the Cheese to Move

Monitor Change
Smell the Cheese Often
So You Know When It Is Getting Old

Adapt to Change Quickly
The Quicker You Let Go of Old Cheese,
The Sooner You Can Enjoy New Cheese

Change
Move with the Cheese

Enjoy Change!
Savor the Adventure
and the Taste of New Cheese!

Be Ready to Quickly
Change Again and Again
They Keep Moving the Cheese

Who Moved My Cheese  Spencer Johnson
LTAD Workshop - Atelier DLTA

Canadian Sport Sharing
Le sport canadien: un échange

January 16 - 17 janvier 2006   9 – 17hrs

Holiday Inn
Gatineau-Ottawa
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Les délégés doivent s’inscrire avec Sport Canada

Carol malcolm-o’grady@pch.gc.ca
Delegates must register with Sport Canada

Un bloc de 35 chambres a été mis de côté pour les délégés de l’atelier

RESERVATIONS : Email:
reservationchaudiere@rosdevhotels.com
A block of 35 rooms have been reserved for delegates

L’atelier est sans frais aux délégés enregistrés,
le déjeuner sera fourni.

The Workshop is free to registered delegates,
lunch will be provided.