

Vision 2020

The Long-Term Athlete Development Plan
for **Snowboarding** in Canada



canadian snowboard federation

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Cover photo
Dominique Maltais
Bronze Medal
Canada
Snowboardcross
Olympic Winter Games
Torino 2006

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Vision 2020 – The Long-Term Athlete Development Plan for Snowboard in Canada

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Foreword

In sport, Canadians love two things:

1. Watching fellow Canadians step high on the podium and
2. Being really good at what they do.

The core to everything we do in sport is Long-Term Athlete Development (LTAD). It is a framework encompassing every element of snowboarding, with the rider as the central focus. LTAD seeks to enable Canadians to step regularly on top of international podiums; due to the system supporting them, not because of exceptional performances.

LTAD gives Canadian snowboarders the opportunity to identify support structure gaps. It also speaks to where we want to be, thus enabling us to adapt our infrastructure, and the program delivery, in order to provide the best opportunities to those who ride, whatever their motivation or stage of development. This may mean dramatically changing the way Canadian snowboarders do things.

The key benefits of LTAD are:

- ✓ everyone will see where they fit and what their role is
- ✓ coaches will have a **guide** in the design of annual plans and programs
- ✓ the whole sport will be able to understand what they need to do
- ✓ stakeholders will know how to make decisions that benefit the long-term development of athletes.

LTAD recognizes that clubs are central to the long-term development of riders, while there are a huge array of other stakeholders that all hold shares in our riders' success and enjoyment in snowboarding.

LTAD recognizes that the windows of trainability in developing athletes are central to the long-term improvement of snowboard performance. Training the right components at the right stage of development is crucial for the success of all athletes from beginning free riders to World Cup racers.

The competitive nature of sport implies that only a few riders will achieve the level to be in elite programs by the time they reach senior level. However, it should be remembered that LTAD is not just an elite model; rather it provides a solid foundation for all riders at all ages and levels, allowing long-term participation, enjoyment and achievement.

Let's celebrate the best and cheer on the rest.

Have fun



Richard Way
Sport Canada LTAD Expert Group

Introduction

**“It takes 10 years of extensive practice to excel in anything.”
H. Simon, Nobel Laureate**

Scientific research has concluded that it takes eight to 12 years of training talented athletes to achieve sporting excellence. This is also called the 10 years – 10,000 hour rule. For all those concerned with a rider’s development this averages over three hours of daily practice over a ten year period (this time will progressively increase from, for example, 1 hour per day for a ten year old to over six hours a day for a twenty year old).

The Long-Term Athlete Development (LTAD) explains how best to use the 10,000 hours depending on the athlete’s age and stage. It provides guidance on what and when to train. It recommends the ratio of time spent competing vs. training vs. recovering. The aim of this LTAD plan is to outline to coaches, parents, clubs, and administrators in Canada what a long-term approach to training and preparation means. The plan gives detailed training and competition guidance that will be of assistance to snowboard stakeholders (clubs, resorts, schools) in planning their programs.

Adaptive Snowboarding for Athletes With A Disability

With approximately 12% of Canadians having a disability (Statistics Canada, 2001), it is crucial that all Canadians be provided with the opportunities to fully engage in physical activity.

Adaptive activities, led by the initiative of the participants and with the increasing support of society, are a growing part of Canadian sport. Snowboarding is also a newcomer to the adaptive field. Snowboarders who have become disabled and others who live with a disability want to be a part of the sport, recreation, and lifestyle that is snowboarding.

Athletes With A Disability (AWAD) are applicable to everything in the able-bodied Snowboard model. The LTAD should be a starting point for ALL athletes and for this reason AWAD have been integrated into the able-bodied Snowboard LTAD with the addition of an eleventh key specific to AWAD.

Development (Biological) vs. Chronological Ages

Training and competition is **currently based on chronological age** – this means that although athletes can be 4 to 5 years apart by maturation levels, we continue to train them the same way. For example, two riders who are the same chronological age (13 years) could have a developmental age of 11 years and the other one of 15 years – 4 years apart.

Reasons for the LTAD?

There are many reasons for introducing a LTAD approach that will be highlighted within this framework.

There are ten clear reasons for implementing a LTAD approach:

1. To establish a **clear** snowboarder development **pathway**
2. To identify **gaps** in the current snowboard development pathway
3. To provide **solutions**
4. To act as **change agent** to create proper planning, training, competition and recovery programs for developing Canadian snowboarders
5. To create a streamlined **efficient system**
6. To provide a **planning tool**, based on scientific research, for **coaches and administrators**
7. To provide awareness, education and action **planning for parents and clubs**
8. To improve **communication** between the four performance partners
9. To help athletes **win!**
10. To facilitate **lifelong enjoyment** in snowboarding

It is anticipated that the factors of LTAD will be used to review existing snowboard programs led by the Canadian Snowboard Federation (CSF) and provide the basis for any future initiatives. It is hoped that all snowboard stakeholders will use LTAD in a similar way. This will enable the snowboard community to work in collaboration in achieving the sport’s goals and targets.

Where are we now?

Canadian sports common issues

This section of the plan provides the broad context that currently exists within snowboarding in Canada. It is not intended to cover all the strengths and weaknesses of our system, but merely to provide an overview of the current position on:

- Coaching
- Training
- Competition
- Facilities
- Administration
- Lifestyle
- Implementation

Coaches

- Training methods and competition programs designed for male athletes are superimposed on female athletes
- More women coaches are needed
- Coaches largely neglect the critical periods of accelerated adaptation to training
- Preparation is geared to the short-term outcome – winning – and not to the process
- Coaches don't understand the benefits of holistic athlete development
- Lack of context specific competency
- Lack of certified coaches

Parents

- Parents are not educated about LTAD
- Fundamental movement skills and sport skills are not taught properly
- Costs of equipment, travel and facility use
- Emphasis on peaking by Friday
- Lack of involvement as club volunteers

Clubs

- Developmental athletes over-compete and under-train
- Adult training and competition programs superimposed on developing athletes
- Chronological rather than developmental age used in training and competition planning
- Lack of a club accreditation program
- Lack of training facilities
- Lack of a bridge from school programs and clubs
- Programming for profit vs. development
- Lack of entry level programs
- Lack of integration of club program with LTAD e.g. addressing the Learn to Ride stage effectively
- Lack of ability to recruit freeriders to club competition programs
- Sport etude limited to Québec and Alberta
- Over emphasis on points chasing in competition

Administrators

- Tradition based competition system interferes with athlete development
- Selection criteria and talent I.D. built around points chasing
- No integration between physical education in schools, community programs, and elite competitive programs
- Most knowledgeable coaches work at the elite level and least educated, least paid coaches at the developmental level where quality coaches are essential
- Lack of a bridge from mass participation to joining a club program
- A continually improving action plan is needed
- A CSF strategy plan built around LTAD as the core business is needed
- A facilitative strategy to accommodate all levels of racers is needed
- Links with ski area owners for training and competition is needed
- Links with equipment providers is needed

Consequences

- Injury
- Failure to reach optimal performance levels in international competitions
- Poor movement abilities
- Lack of proper fitness
- Poor skill development
- Bad habits developed from over-competing focussed on winning
- Undeveloped and unrefined skills due to under-training
- Female athlete potential not reached due to male oriented programs
- Children not having fun as they participate in adult-based programs
- No systematic development of the next generation international athletes
- Athletes pulled in different directions by school, club, and provincial teams because of the structure of competition programs
- Remedial programs, implemented by provincial and national team coaches, to counteract the shortcomings of athlete preparation
- Fluctuating performance due to lack of talent identification and a developmental pathway
- Athletes fail to reach their genetic potential and optimal performance level
- Athletes leave sport and want nothing to do with it later

Where would we like to be?

The mission of the Canadian Snowboard Federation is to be...

- The provider of opportunities from park to podium and the promoter of self-expression and individuality in the pursuit of personal excellence.
- A forum for all types and levels of snowboarding.
- The provider of programs and support services, based on established principles of long-term athlete development, for all levels of snowboarding ability.
- Committed to high performance excellence in World Cup, World Championship, and Olympic Winter Games competition.

In addition, the CSF highlights targets for club development, provincial associations and coach education, the three main vehicles for delivering LTAD.

How are we going to get there?

We are going to get there through a 3-step process.

STEP 1:

The 11 key factors influencing LTAD

The first step toward finding a solution is to understand the 11 key factors influencing any long-term athlete development plan, particularly as they relate to snowboarding in Canada. These are examples of:

- Training, competition and program guidance based on the growth and development of the rider including sensitive periods of trainability
- Generic principles of motor and skill development
- Guidance and tools to assist coaches, clubs, parents and administrators in delivering the LTAD towards achieving the Canadian Snowboard Federation goals and targets.

It is recognised that currently there may only be a few clubs that can deliver all LTAD key factors, but like LTAD itself, this is a long-term approach that should assist clubs and training groups to work towards developing the right training environment for all in the sport to achieve their potential, whatever their aspirations.



STEP 2:

The 8 stage Athlete Development Model

Success comes from a well planned training program over the long-term. The Canadian Snowboard Federation has designed an eight stage Athlete Development Model (ADM) based on the LTAD work of Sport Canada's LTAD Expert Group. These eight stages are Active start (AS), Fundamentals

(FUN), Learn to Ride (L2R), Train to Train (T2T), Train to Compete (T2C), Learn to Win (L2W), Train to Win (T2W) and Active for life (A4L). These stages from page 21 to 57 span the growth and strategic performance factors of an athlete over a 20 to 25 year period.

Reference ages per LTAD stage

Development Stages	Stage 1 AS	Stage 2 FUN	Stage 3 L2R	Stage 4 T2T	Stage 5 T2C	Stage 6 L2W	Stage 7 T2W
Priority	Play	Fun	Skills	Train	Compete	Compete	Win
Stage 8 • A4L				Enter ACTIVE FOR LIFE after any stage			
Alpine (PGS)						♂ 19 – 25 ♀ 18 – 24	♂ 25 + ♀ 24 +
Snowboard-cross (SBX)	♂ 0 – 6 ♀ 0 – 6	♂ 6 – 9 ♀ 6 – 8	♂ 9 – 12 ♀ 8 – 11	♂ 12 – 16 ♀ 11 – 15	♂ 16 – 19 ♀ 15 – 18	♂ 19 – 24 ♀ 18 – 23	♂ 24 + ♀ 23 +
Halfpipe (HP)					♂ 15 – 18 ♀ 14 – 17	♂ 18 – 21 ♀ 17 – 20	♂ 21 + ♀ 20 +

It must be noted that ages described are general guidelines. The Individual tempo of development/maturation will influence how the athletes will reach the various long-term development. However, they

all will go through the same stages. Some early maturing athletes may have as much as a four-year physiological advantage over their late maturing peers. (Ross et al. 1977).

STEP 3: Putting it all in operation

Implementing a long-term plan will take time, patience and a willingness to improve through change.



Things you can do

Look for specific suggestions for each partner, at each stage in the snowboard system

Coach

Parents

Clubs

Administrators

LTAD key

1

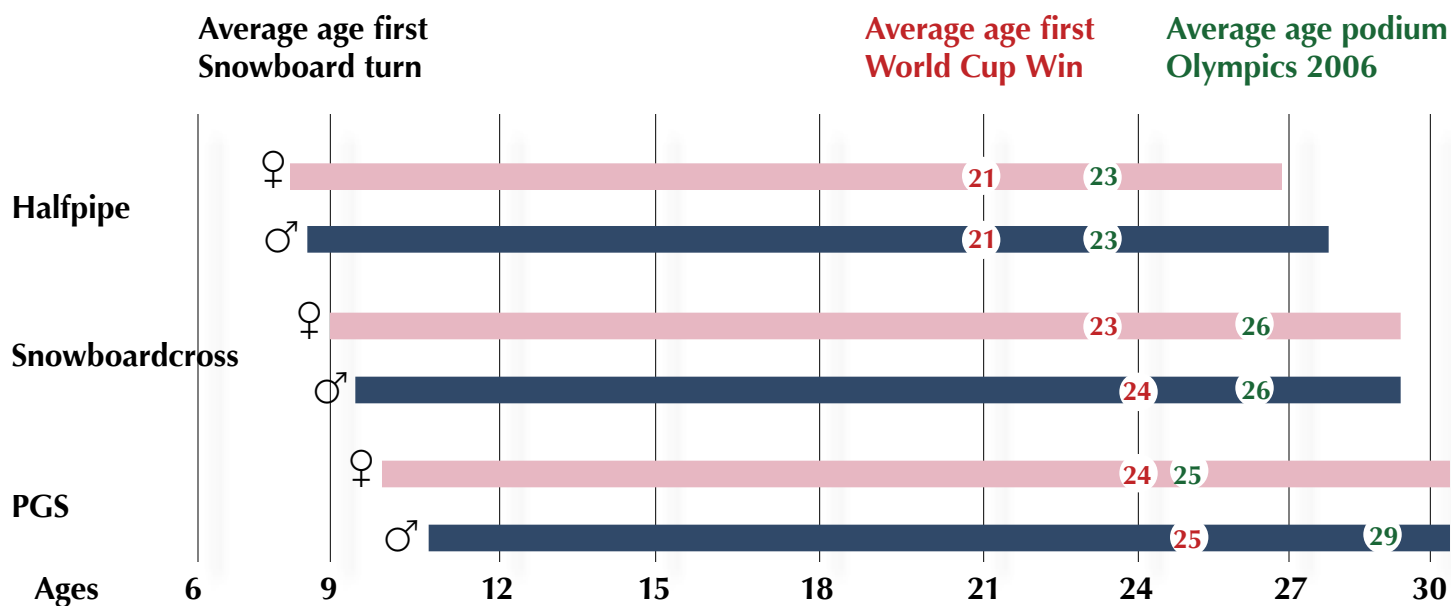
The Ten-Year Rule

“There is no shortcut to success in athletic performance”
Istvan Balyi, LTAD Guru

Research has concluded that it takes a minimum of 10 years and 10,000 hours of deliberate training for a talented athlete to reach elite levels (Starkes & Ericsson, 2003). For an athlete and coach, this translates into slightly more than 3 hours of training or competition daily for 10 years.

A study of 85 snowboard Olympians in Torino has shown that less than 10% have started snowboarding before the age of 8 years old. Most have been snowboarding for 15 years, thus allowing 4 to 5 years to develop the fundamentals of snowboarding and 10 to 12 years of deliberate training.

Olympic athlete learn to turn profile



Age Tolerance is + or - 1 year.

Recommendation: It takes a long time to develop a champion; therefore it is important that we track their progression and not rush their development.

LTAD key

2

FUNDamentals

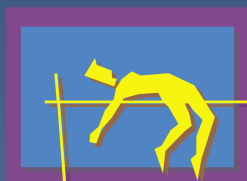
FUNDamental movements and motor skills should be introduced through fun and games. FUNDamental sports skills should follow and include basic overall sports skills.

Physical literacy:

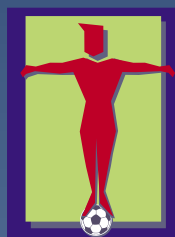
- Is the mastery of fundamental movement skills and fundamental sport skills
- Refers to competency in movement and sport skills
- Should be developed before the onset of the adolescent growth spurt
- Is essential to develop any snowboarder



agility



jumping



balance



co-ordination



speed



climbing



walking



skating



hopping



swimming



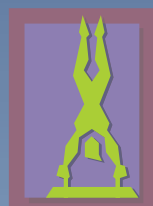
dribbling



cycling



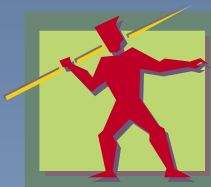
shooting



acrobatics



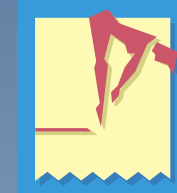
kicking



throwing



hitting

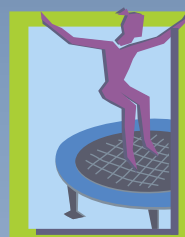


diving

FUNDamental Snowboard Movement skills



skiing



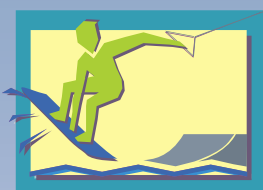
trampoline



skateboarding



windsurfing



wakeboarding



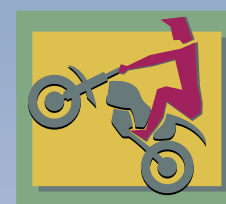
surfing



kiteboarding



snowboarding



motocross



Early and Late Specialization

Sports can be classified as either early or late specialization. Early specialization sports include artistic and acrobatic sports such as gymnastics, diving and figure skating. These differ from late specialization sports in that very complex skills are learned before maturation, since they cannot be fully mastered if taught after maturation.

Snowboard research (Annex D) has shown that the first Win age for athletes on the World Cup circuit is:

- Alpine: 25 for males and 24 for females
- Snowboardcross: 24 for males and 23 for females
- Freestyle: 21 for males and females

As the sport evolves, trends seem to indicate that the average age of first victory remains over 20 years old. As a consequence, snowboarding can be classified as a late specialization sport.

Specialization before the age of 13 is not recommended for late specialization sports as this has been shown to contribute to one dimensional preparation, injuries, physical and mental burnout and early retirement (Harsanyi, 1985).

To offset the asymmetrical nature of snowboarding's effect on bone and muscle growth, the Canadian Snowboard Federation recommends young children learn to ski before learning to snowboard at around 7 years of age.

A vital period for the development of motor coordination (skill window) in children is between the ages of eight and twelve (Balyi and Hamilton, 1995; Rushall, 1998; Viru et al., 1998). Snowboard sessions should emphasize the development of general, fundamental motor and technical skills and work towards building a snowboarder first and Snowboard specialist second. Below is a table of recommended training ratios per discipline, per stage.

LTAD training ratio per discipline, per stage (Big White coaches, 2005)

Development Stages	Stage 1 Active start AS	Stage 2 FUN- damentals FUN	Stage 3 Learn to Ride L2R	Stage 4 Train to Train T2T	Stage 5 Train to Compete T2C	Stage 6 Learn to Win L2W	Stage 7 Train to Win T2W
Ratio of FREERIDE: RACE: SNOWBOARDCROSS: FREESTYLE training volumes/year							
PGS skills	Ski	Ski + 1:1:1:1	3:2:2:2	3:3:1:1	5:10:1:1	3:10:1:0	1:3:0:0
SBX skills				3:1:3:1	10:2:10:1	6:1:9:1	3:1:10:1
HP skills				2:1:1:3	3:1:1:8	3:1:1:8	3:1:1:15

Recommendation: Children should learn to ski before snowboarding and learn the fundamentals of all three disciplines (speed and air) before specializing in any one.

LTAD key

4

Developmental Age

Development refers to “the interrelationship between growth and maturation in relation to the passage of time. The concept of development also includes the social, emotional, intellectual, and motor realms of the child.”

There are 5 types of ages:

1. Developmental or biological age:

The degree of physical, mental, cognitive, and emotional maturity.

2. Chronological age: The number of years and days elapsed since birth.

3. Specific training age: The number of planned, regular, serious seasons of training an athlete has experienced in a snowboard program.

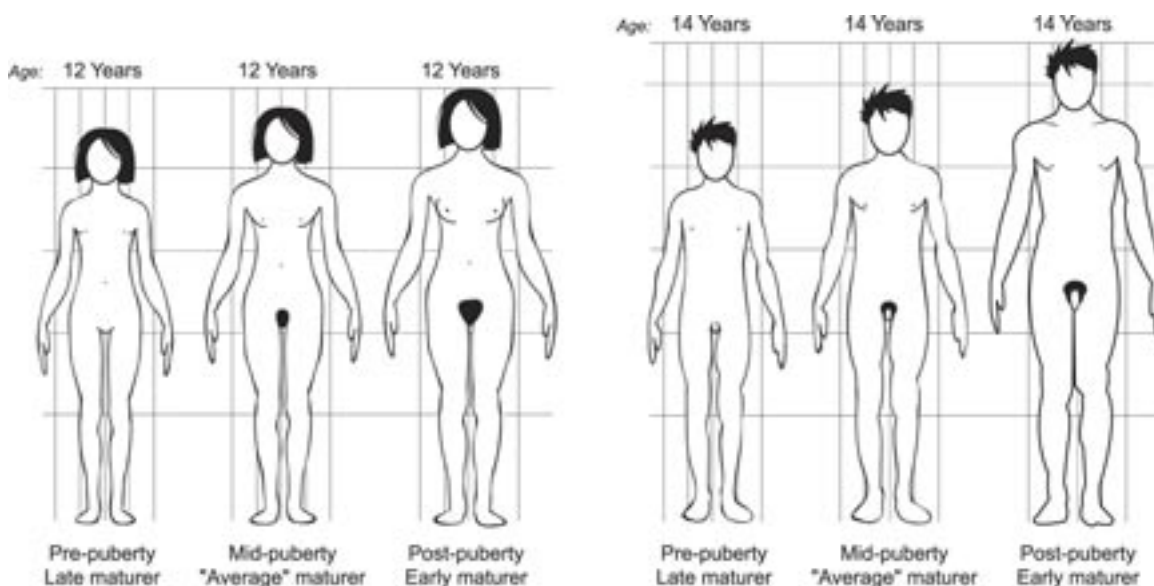
4. General training age: The number of planned, regular, serious seasons of training an athlete has experienced in another sport program.

5. Skeletal age: The maturity of the skeleton determined by the degree of ossification of the bone structure, not in size, but in respect to shape and position to one another.

Early maturers vs. Late maturers

Early maturers have a significant biological advantage over their competitors and have traditionally been selected over late maturers at an early age. Eventually late maturers catch up with early maturers, further confirming that all children and young athletes do not evolve at the same rate. Successful snowboard training programs tend to be those who take a long-term development approach with either early or late maturation considerations when the program is designed.

Maturation in girls and boys



Adapted from "Growing Up" by J.M. Tanner Scientific American 1973

Recommendation: Snowboard program design must consider all five ages to ensure children and pre-pubertal teens are placed in appropriate training and competition situations.

LTAD key

5

Windows of Opportunity or windows of accelerated adaptation to snowboarding

“Long-Term Athlete Development is about achieving optimal training, competition and recovery throughout an athlete’s career, particularly in relation to the important maturation years of young people.”
Balyi (2002)

Research shows that certain critical periods in the life of a young person are particularly sensitive to trainability. If these periods, called: **windows of opportunity** are ignored, the riders may never reach their full genetic potential. It is vital that coaches, parents and club administrators are aware of these critical periods of “accelerated adaptation” so that they become fully exploited.

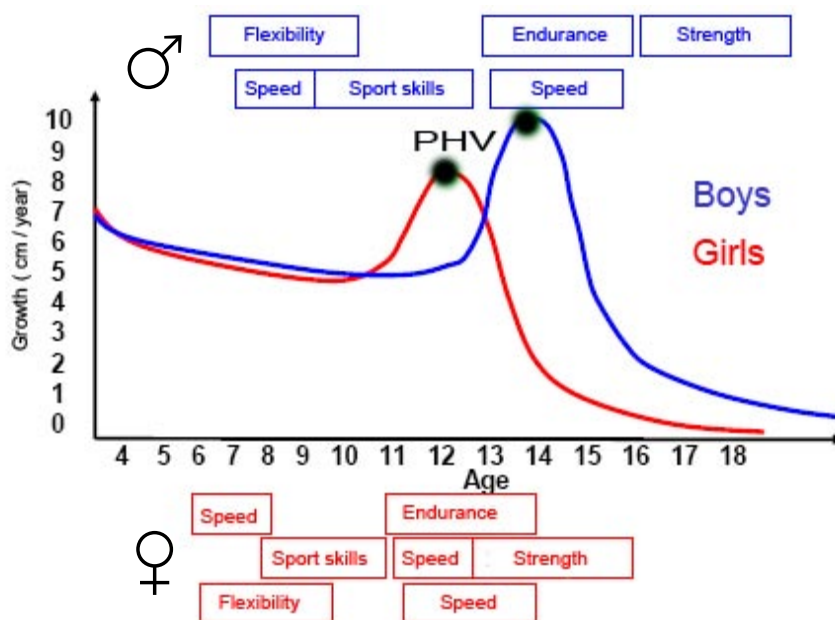
These windows are composed around the 5 S’s of training and performance: **S**tamina (Endurance), **S**trength, **S**peed, **S**kills, and **S**uppleness (Flexibility) (Dick, 1985).

Optimal windows of trainability for physical development (Adapted from Balyi and Way, 2006)

Peak Height Velocity (PHV) is the maximum rate of growth in stature during growth spurt. The age of the maximum velocity of growth is called the age at PHV. The most intense period of growth for girls occurs between 11 to 14 years; while for boys it is between 12 to 16 years.

Adaptation refers to a morphological response or change in the body after a training stimulus that may happen at any age.

Trainability refers to a faster adaptation of a stimulus during growth, development and maturation of young athletes. There is a high degree of variation in the trainability of athletes, depending on genetic and environmental factors.



Recommendation: From the beginning (onset of PHV) to the end of puberty (PHV), young athletes should be exposed to specific types of training. This period of rapid growth will be characterized by training re-modeling and adaptation.



Physical, Technical, Tactical and Psychological Development

Each aspect of an athlete’s development evolves at a different rate, so training, competitive and recovery programs should adapt to their experience because no one athlete fits perfectly within each stage during their progression.

Dan, 19 years old, is very fit from years of skateboarding, wakeboarding and has been working out twice a week in a gym. He is in university and has

been snowboarding for 6 years. His only competitive experience comes from hockey which he quit at the age of 15. He now wants to compete in SBX and joins the University snowboard team. How do the LTAD principles work for him?

The following mis-aligned stages provide a guideline on how to adapt the psychological, physical, environmental and technical skill development characteristics for Dan.

Mis-aligned performance factors

Dan, 19 years old

Chronological Age	Stage 2 FUN- damentals FUN	Stage 3 Learn to Ride L2R	Stage 4 Train to Train T2T	Stage 5 Train to Compete T2C	Stage 6 Learn to Win L2W	Stage 7 Train to Win T2W
Psychology	FUN	L2R	T2T	T2C	L2W	T2W
	Play	Sample	Specialize	Investing	Mastery	
Skill (Technical)	FUN	L2R	T2T	T2C	L2W	T2W
	Introduce	Develop	Stabilize	Optimize	Maximize	
Competition (Tactical)	FUN	L2R	T2T	T2C	L2W	T2W
	Snow School	RBC Riders	FIS	Nor-AM	World Cup	Olympic
Physical	FUN	L2R	T2T	T2C	L2W	T2W
	Physical literacy		Physical excellence			
	Fundamental Movement skills	Fundamental Sport skills	Fit to Train	Fit to Perform	Fit to Win	

Recommendation: An athlete will always be placed in a stage according to his technical abilities; all other performance factors need to be adjusted accordingly.



Periodization

Periodization is where the science of training meets the art of coaching. It's about sequencing the right activities at the right time to achieve success in an annual or long-term plan.

Periodization:

- Manipulates volume, intensity and frequency of training
- Considers training, competition and recovery strategies
- Includes all factors contributing to snowboard performance
- Intends for athletes to peak their athletic performance one or multiple times in a year

The five blocks of training and competition		Duration
Macro cycle	Length of a single training or competition season	4 to 12 months
Period	Preparation / Competition / Transition	1 to 8 months
Phase	General / Specific / Pre-competition / Competition / Transition	3 to 10 weeks
Meso cycle	Conditioning / General preparation / Specific preparation / Maintenance / Pre-competition / Competition / Tapering / Recovery / Transition	2 to 6 weeks
Micro cycle	The smallest training cycle before daily training sessions	1 week

Periodization takes form in an annual training plan: for example see Appendix C.

Years with one competition peak will be single periodized while years with two competitions peaks will be double periodized, and so on...

Recommendation: The National Coaching Certification Program (NCCP) level 3 or Comp. Dev. Multi-sport modules (www.coach.ca) provides complete information regarding annual planning and periodization.

LTAD key

8

Calendar Planning for Competition

The system of competition makes or breaks athletes

Once training programs have been designed around growth and development principles, teams will need a competition environment to facilitate performance. Optimal competition calendar planning allows for the strategic development of physical capacities or other critical performance factors to foster success and continued participation.

Recommended ratios of training and competing, per stage	Stage 3 Learn to Ride L2R	Stage 4 Train to Train T2T	Stage 5 Train to Compete T2C	Stage 6 Learn to Win L2W	Stage 7 Train to Win T2W
% Ratio Train and Freeride/Comp and simulation	85 / 15	75 / 25	70 / 30	70 / 30	60 / 40
Number of days on snow per year	40	50 to 70	70 to 100	100 +	150 +
Number of days in comp simulation	3	5 to 7	8 to 11	13 to 20	30 to 40
Number of days in competition	3	6 to 8	8 to 11	8 to 13	10 to 15

A few gaps in the existing situation are identified below, with proposed solutions:

Situation-A: Points based talent identification, athlete recruitment initiatives or team selection policies in the T2T and T2C stages accentuate the “peaking by Friday” points chasing approach. —→ **Solution-A:** Design coach driven selection strategies by targeting specific events.

Situation-B: Gaps in the system are defined by too little or too many competitive opportunities. —→ **Solution-B:** Alignment, communication and shared leadership amongst administrators.

Situation-C: Adult formats are superimposed on kids inhibiting deliberate LTAD practices. —→ **Solution-C:** Building “age-stage” appropriate facilities and contextual competition venues.

Situation-D: A high ratio of events to training activity delays optimal skill development. —→ **Solution-D:** Strategizing the number of starts for athletes with a long-term vision.

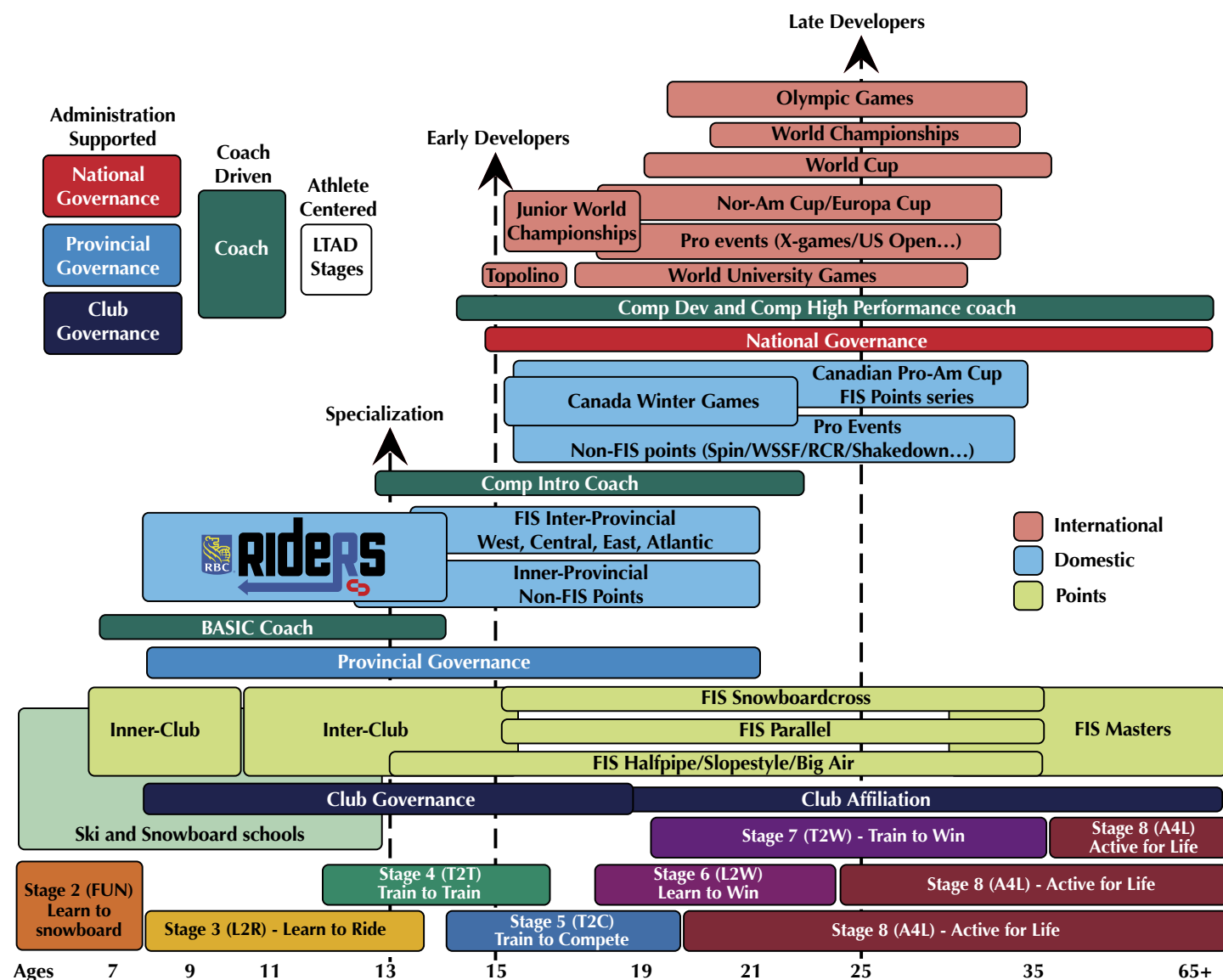
Recommendation: The current system of competition is based on tradition. National, provincial, club and ski area administrators need to review their existing schedule from the entry to the elite level and provide the best possible development pathway for athletes.



System Alignment and Integration

The process of designing and implementing the Canadian Snowboard Federation LTAD plan is athlete centered, coach driven and administration supported.

Canadian snowboard competition structure



Recommendation: All performance partners need to have a clear understanding of their roles and responsibilities.



Kaizen

The concept of continuous improvement, which permeates LTAD, is drawn from the respected Japanese industrial philosophy known as Kaizen.

改

Kai
=
Change

善

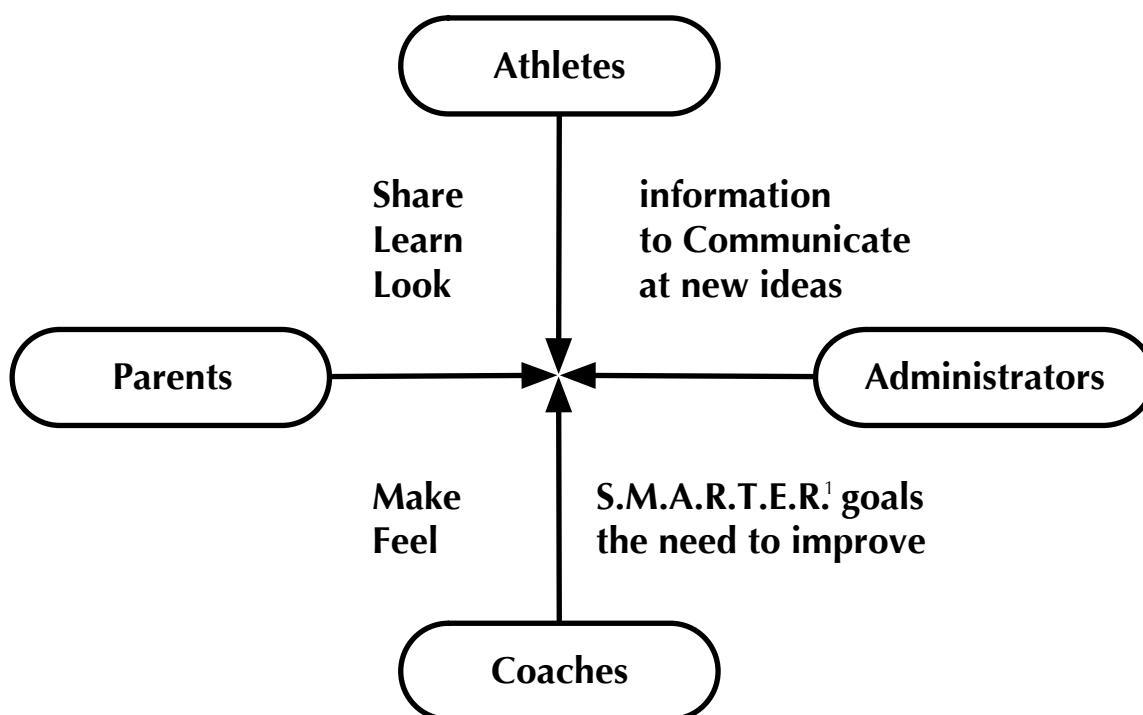
Zen
=
Good

改善

Kaizen
=
Continuous improvement

The current LTAD plan will change as the four partners of performance work in partnership.

The 4 partners of performance



¹ Specific. Measurable. Achievable. Realistic. Time-based. Evaluated. Revised

Recommendation: Initiatives based on the LTAD framework always take into consideration latest developments in science, sport and culture.



Adapting the 10 Keys for Athletes with a Disability

While there are many similarities between Athletes With A Disability (AWAD) and able-bodied athletes, there are some differences that change the LTAD process.

The Ten-Year Rule – Exactly how long it takes to become an elite level adaptive snowboarder varies with the nature of the disability, and varies considerably with the pre-injury sporting experience and expertise of trained athletes who acquire a disability.

The FUNdamentals – The physical literacy skills needed by children with a disability vary greatly depending on the nature and extent of their disability. It should include all skills learned by able-bodied children (modified as required) as well as additional skills required for effective use of assistive devices.

Specialization – It is critically important that people with congenital or acquired physical or intellectual disabilities be exposed to the full range of FUNdamentals before specializing in the sport of their choice, such as Snowboarding.

Developmental Age – Some congenital disabilities are known to influence childhood and adolescent development and the timing of puberty. Because of the variations in the timing of puberty (and therefore peak height velocity), it is likely that there will also be variations in the ages at which optimum periods of trainability occur.

The mental age (a measure of intellectual development) also needs to be considered when working with athletes with an intellectual disability.

Trainability – Due to the absence of information on periods of optimum trainability for AWAD, it is suggested that for children with a congenital disability the ages be adjusted based on the observed age of puberty.

Physical, Mental, Cognitive, and Emotional Development – Sport can play an important role in helping individuals with a physical or intellectual disability to develop a new, positive self-image as well as enhance their self-concept. When working with athletes with an intellectual disability it is particularly important to consider the athlete's mental and developmental age rather than their chronological age.

Periodization – Since a disability may reduce functional muscle mass, fatigue in AWAD should be carefully monitored, and rest and recovery periods should be adjusted accordingly.

Calendar Planning for Competition – Effective competition for AWAD in all classifications needs to be matched to the athletes' stage of development. This can be a challenge when there are few athletes in a particular sport or classification/division within that sport.

1. **Emily Cavallin**
- Lower leg amputee riding with a prosthetic leg
2. **Tyler Mosher**
- Incomplete paraplegic (standing)
3. **Ian Lockey**
- Incomplete paraplegic (standing)



System Alignment and Integration – The Snowboard LTAD focuses on the development of both able-bodied and disabled snowboarding athletes by aligning and integrating the many components involved in providing optimum benefits for all snowboarding athletes in Canada.

Continuous Improvement – Evaluating new information on sport for AWAD, selecting what information will be used, and then integrating it into programs and services must be an active, ongoing process, tied to the concept of continuous improvement.

AWAD pass through the same stages as able-bodied athletes, although the ages and rate of progress may differ

The eight stages of the able-bodied Snowboard LTAD represent the “normal” range of ages at each stage for non-disabled individuals. Individuals with a disability, particularly those with an acquired disability, may

pass through the stages at significantly different rates and at greater speeds since their experience before acquiring a disability (rather than chronological age) become an important factor.

Since people become disabled at any age, no ages have been assigned to the Awareness stage (for AWAD) in Active Start. The life-long importance of an Active Start for kids with a congenital disability cannot be overemphasized.

Athletes who retire from adaptive snowboarding competition need to be encouraged to remain involved in adaptive snowboarding as a coach, instructor, official, program volunteer or mentor.

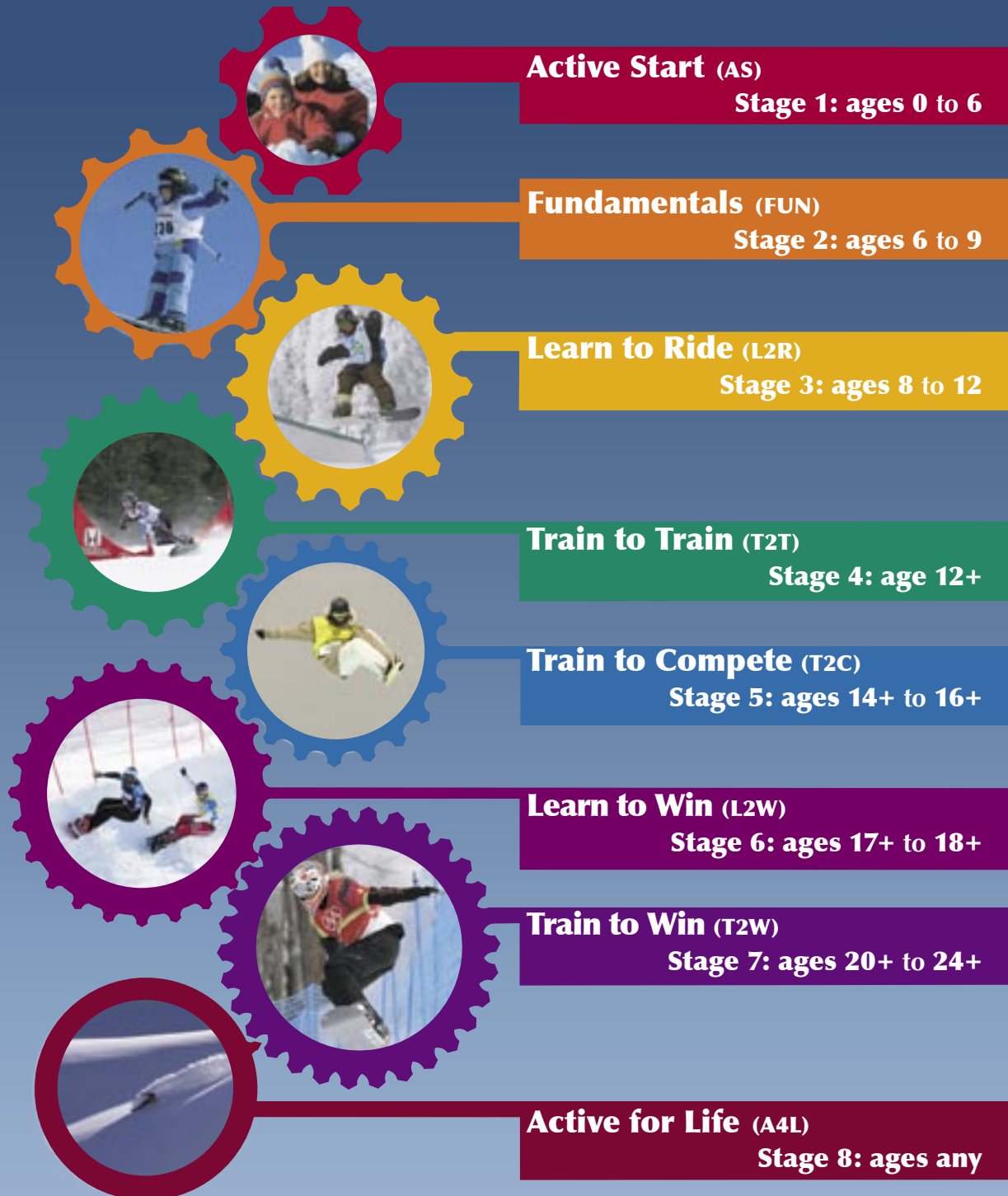
Note: Specific disabilities may advance or slow development for any given chronological age.

After an athlete acquires a disability the athlete should return to the Active Start (Awareness) stage for athletes with a disability.

Recommendations: AWAD are applicable to everything in the able-bodied Snowboard Long-Term Athlete Development (LTAD) model, and for that reason should be a starting point for ALL athletes. The 11th key is, therefore, only concerned with additional factors that need to be considered when working with AWAD in snowboarding.



The 8 stages of the Snowboard LTAD Framework



STAGE

1

Active Start (AS)

Chronological age:

0 to 6 – Infants and toddlers

Skill: Crawling, walking, swimming, running, skiing

Program: Swimming, gymnastics, athletics, skiing (4 pillars of physical literacy)

General description of stage

This is where a child learns how to have fun!

Since physical activity is essential for healthy child development, the key is to encourage basic movement skills because they do not just happen as a child grows older, but develop depending on each child's heredity, environment and activity experiences.

Starting in infancy, parents need to provide infants, toddlers, and preschoolers with opportunities to participate in daily activity that promotes movement. Building a well structured environment combining the four pillars of physical literacy – skiing, athletics, swimming and gymnastics – enables the child to move effortlessly into the FUNdamentals stage.

TO DO (action plan)

Stimulate cooperative partnerships between

- ✓ Summer and winter sport programs
- ✓ Parents and ski schools
- ✓ Ski schools and snowboard clubs

Adaptive snowboarding:

Window of opportunity for athletes with a disability

Athletes with a congenital disability: Because people with a disability tend to be less active than their peers, ensure that activities are gender-neutral and inclusive so that active living is equally valued and promoted for ALL people

Awareness for athletes with an acquired disability (AWAD): Sport opportunities for people with a disability are not always well known and someone who acquires a disability may have no knowledge of what sports are available. Sports need to develop awareness plans to make their offerings known to prospective AWAD.

LTAD Window of opportunity – Physiological development

Initiation of basic human movement skills:

Running, jumping, kicking, throwing, catching, swimming, sliding, etc...



Physical Development

Mastering of fundamental motor skills

Focus on gross motor skills with large muscle groups through unstructured activity.

Provide organized physical activity for at least 30 minutes a day for toddlers and at least 60 minutes a day for preschoolers.

The gross motor skills from the 4 pillar sports provide the base for all other sports:

- Running, jumping, throwing
- Bouncing, rolling, flipping, spinning
- Balance and buoyancy, and as the foundation for all surf related sports
- Gliding, sliding, sledding, tobogganing, Crazy Carpet, etc.

4 pillars of sport literacy

Skiing Learn to ski

Athletics Learn to run

Swimming Learn to swim

Gymnastics Learn to jump

Psychological Development

Physical activity is essential for healthy child development. Among its benefits, physical activity enhances:

- Development of brain functions, social skills, emotions, attitudes, and imagination
- Confidence and positive self-esteem
- Stress reduction by quality of sleep

Design activities that help children to feel competent and comfortable participating in a variety of fun and challenging sports and activities. Ensure that games for young children are non-competitive and focus on participation.

RECOMMENDATIONS

(AS)

Lifestyle

Active, safe and fun

- Not sedentary for more than 60 minutes except when sleeping
- Proper fitting protective gear
- Non-competitive amusing activities and sports
- Exploration of risk and limits in safe environments

STAGE

2

Fundamentals (FUN)

Physical literacy

Chronological age:

Girls 6 to 8 and boys 6 to 9 – Late childhood

School: Elementary school

Skill: Learning to snowboard, basic sport movement skills

Program: Clubs, recreation centers, entry level ski programs

Instructor: Ski and snowboard, diving, skateboard, gymnastics
(5 pillars of snowboard literacy)

General description of stage

This is where a child learns physical literacy: Interrelation of movement skills and sport skills.

The FUNdamentals stage should be structured and fun! The emphasis is on developing basic fundamental sport skills in a fun and positive social environment.

Speed, power and endurance are developed using sports and games. In addition, children should be introduced to decision-making skills and simple rules and ethics of sports.

There should be well-structured programs with proper progressions that are monitored regularly by trained educators, coaches and parents.

Key areas of focus:

- Learn to snowboard
- Maximize first speed window

TO DO (action plan)

- ✓ Link ski and snowboard schools with ski clubs
- ✓ Link ski clubs with snowboard clubs
- ✓ Increase number of entry level snowboard coaches

Adaptive snowboarding: Window of opportunity for athletes with a disability

Ensure that disability equipment is size, weight, and design appropriate

LTAD Window of opportunity – Physiological development

Beginning of phase

- 1st window of opportunity for speed development
Girls from 6 to 8
Boys from 7 to 9

Entire phase

- Suppleness/ Flexibility
- Movement skills



Parents

Physical Development

Mastering of fundamental movement skills

At this stage motor patterns become more refined and balance skills improve as the inner ear gradually matures. No gender differences are apparent and physical activity should still be done through games and sports play. Provide opportunities for preferred and supportive physical activity at least 4 times a week.

Patterning Ambidextrous sports for refined motor skills:

- Athletics, gymnastics, waterpolo, handball and diving for developing the ABC's: agility, balance, coordination, speed and suppleness
- Soccer, hockey, tennis, volleyball, basketball, baseball, etc. for developing catching, passing, dribbling, kicking, striking
- Biking/BMX, dancing, skiing, motocross, etc. for developing skill, speed, balance, coordination

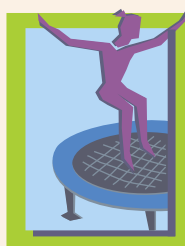
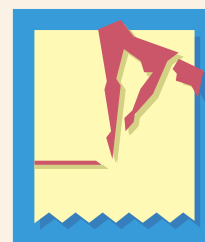
Initiation to Asymmetric sports for gross motor skills

Skateboarding, snowboarding, skating, surfing, sliding for:

- Snowboard movement skills in 3 planes of balance (fore and aft, lateral, rotational)
- Front foot and back foot control

*Initiation to **physical training** through games and play with simple rules that focus on technique, form and fun with:*

- Circuit training: medicine ball, Swiss ball, own body weight strength exercises

5 pillars of snowboard literacy**Skiing****Skateboarding****Athletics****Gymnastics****Diving**

Parents

Psychological
Development**Develop reasoning skills through various sports and activities**

Provide opportunities for activities and sports that:

- *Are FUN, positive and motivating*
- *Are exploratory and allow for self-discovery*
- *Build confidence with a high rate of success*
- *Promotes individual and group participation*
- *Have a “no excuse atmosphere”*
- *Introduce children to simple rules and moral dilemmas*

Ensure that games for young children are non-competitive and focus on participation.

Parents

Coach

Technical Development

Learn to turn

Learn to snowboard with the Canadian Association of Snowboard Instructors (CASI) snowboard professionals

1. *Basic mobility*
2. *Side slipping*
3. *Pendulum*
4. *Traverse with stop*
5. *Isolated beginner turn*
6. *Linked beginner turn*
7. *Novice turns*

Air and speed

*General **skiing** and **skateboarding** skills: stance (variety), balance, timing, coordination and speed control.*

React and respond to varying:

- *Terrain through turn shape*
- *Terrain through stance changes*
- *Speeds for jumps*
- *Height of jumps*
- *Condition through pressure control*
- *Visibility by adjusting*
 - 1) *take off*
 - 2) *in the air*
 - 3) *landing and reaction*

Parents

Lifestyle

Fun, adventure, social and play***The kids learn:***

- To have fun practicing four to six of the recommended sports (see physical development – stage 2)
- How to eat in a healthy way starting the day with a breakfast and avoiding fast-food abuse
- How to keep the body warm with proper winter wear
- On-hill basic safety
- To wear a helmet as soon as they start doing impact sports

Window of opportunity for:

- Learning other languages
- Learning music

Where to go now?

L2R

or



STAGE 3

Learn to Ride (L2R)

Snowboard literacy

Chronological age:

Girls 8 to 11 and boys 9 to 12
Late childhood and early puberty

School: Elementary school

Skill: Fundamental snowboard skills

Program: Club, Inter-Club, RBC Riders, Ski and Snowboard School

Coach: BASIC and Comp Intro coach or Level 2 - 3 snowboard instructor

Time on snow: 40 days

On snow ratio:

3 Freeride, 2 GS, 2 Park, 2 Pipe

Priority: FUN

TO DO (action plan)

- ✓ Integrate RBC Riders program
- ✓ Increase quality of club programming
- ✓ Align club and Provincial Snowboard Organisation (PSO) structures

General description of stage

Introducing snowboarders to all three Olympic disciplines ensures a holistic skill development. This will allow the competitor to identify what they like while creating a great multi-skill foundation.

Inter club competitions and RBC Riders events are introduced for fun, but are not the main focus. This is where the competitive spirit in athletes of the future is born.

Key areas of focus:

- Build turning and air skills with speed
- Keep track of growth spurt

Adaptive snowboarding:

Window of opportunity for athletes with a disability (AWAD)

- Introduce AWAD to adaptive snowboarding equipment such as athletic sport prosthesis, outriggers, and sit-snowboards
- Body-sized and skill-level appropriate equipment remains important

LTAD window of accelerated adaptation to snowboarding

The Learn to Ride and Train to Train stages are the most important stages of athletic preparation. During these stages, we make or break an athlete!

Beginning of: • Aerobic stamina
Girls 11 to 14±
Boys 12±

Entire phase: • Sport skills 8 to 12±
• Flexibility and Balance 7 to 11±
• 2nd speed window (girls) 11 to 13±
• Air awareness



Parents

Coach

Physical Development

Mastering of fundamental sport skills

Narrow focus to a minimum of 3 sports.

At this stage, children are developmentally ready to acquire the general sports and snowboard skills that are the cornerstones of all athletic development.

Maintenance and refinement
Ambidextrous sports

Patterning **Gliding sports**

*Participation in sports that require similar movement patterns:
Skate, wake, wind, kite and surf*

Initiate monthly **Data mining:**

- *Keeping track of growth spurts before PHV by regularly measuring the height of children and looking for a sudden height increase.*
- *Growth spurt's of girls and boys lasts approximately 12 months*

Introduce general fitness framework early in stage

1. *Warm-up*
2. *Rhythm and co-ordination runs: ex. turn shape, multi-discipline events, King of the hill...*
3. *Spatial Awareness: ex. air time runs, how many direction changes can you do in a run*
4. *Rest and recovery: ex. lunch, fuel breaks, sleep*
5. *Reaction time and agility: ex. games in park, tree runs etc.*
6. *Focus on skill and execution*
7. *Cool down with short stretch and muscle rebalance because of the rapid growth of bones, tendons, ligaments and muscles*

Further in stage**As above with the following:**

8. *More speed work: ex. race your buddy...*
9. *Explosive strength: starts, cart wheels...*
10. *Landings without arm drags: focus on good landings with good leg power...*
11. *More stretching at the end of training sessions*
12. *Monitor volume, quality, intensity and duration of sessions*

Parents

Coach

Psychological Development

The Sampling stage

Provide opportunities for activities and sports that focus on fun, pleasure and socialization

- **S.M.A.R.T.E.R.¹ goal setting** and process orientated
 - Long-term goals: Dreams
 - Short term goals: Based on skill development
- **Team spirit:** Learn how to relate to different groups of peers
- **Concentration:** Discover new abilities to concentrate
- **Visualisation:** Transfer of video and snowboard/skateboard video game scenarios to real life
- **3 important psychological skills to develop:**
 1. Deliberate effort: The ability to deliver effort and enjoy the feeling of the effort during the activity itself
 2. Responsibility: The ability to associate joy with effort and “competition”
 3. Success: The ability to take risk and accept failure as a normal occurrence of sport development

The central goal is to come out of the Sampling stage of athlete development with a participant who begins to understand basic psychological skills.

¹ Specific. Measurable. Achievable. Realistic.
Time-based. Evaluated. Revised

Window for the
competitive spirit

Speed

Ride anywhere

Gross motor skills acquisition:

Stance – Balance – Timing – Coordination

1. Learning to find balance and stability:

- The **neutral position** as the most stable position.
- Initiation of turn with **hips inside of turn** followed by knee movement and feet.
- **Equal weight** on both legs, less and less front foot pivot towards middle of this stage.
- **Up-unweighting** movement coordinated with arms.
- The J shape and C shape of a turn.

2. Developing consistency by demonstrating various shapes and sizes of **turns and air**

3. Consolidating stability over changing snow, features, steepness, light and weather

Air

Dry land: Trampoline and diving instruction with certified coaches

Mini-pipe

Vision for 1) take off 2) in the air
3) landing and reaction

- **Drop in** both walls on the uphill edge
- Balanced body position across the **flat bottom**
- **Take off** and land on uphill edge
- Demonstrate a variety of grabs with gradual amplitude
- Switch take off

Park, jumps and rails

- Remain **balanced** on take-off, during air and landing
- Gap jumps
- Spin switch and regular
- Slide intermediate rails and boxes
- Demonstrate a variety of grabs
- Switch take off

Manœuvre based

Spin around vertical axis:

- 360° rotations
- Cab spins
- Straight airs
- Air to fakie
- Alley oops

Grab all spins:

- Front and back hand
- Toe and heel edge
- Front and back side wall
- Switch and regular

Parents

Coach

Training and competitive
environment

Single periodization to follow seasonal club schedule and regional snow coverage:

- **40 days on snow:** 6 days in competition or simulation
- **Training ratio:** 85% training and freeriding/15% competition ratio
- **On snow quantity and intensity:** 1 to 3 sessions/week with low intensity
- **Complimentary sports:** 4 to 6 sessions/week
- **Average duration of sessions:** 90 to 120 minutes
- **Competition format:** hybrid event/skills event
- **Competition goals:** fun with air and speed sense through a variety of challenges
- **Competition venues:** inner/inter club rail and slope style jams with focus on speed

Lifestyle

Fun, adventure, social, music and art

Introduce the rider to:

- Other cultural and lifestyle habits
- Warm-up and cool down supervised sessions
- The importance of staying hydrated, especially during physical activities
- The general rules and ethics involved in skiing and snowboarding
- Proper fit and use of sporting and protective gear
- The importance of school and education
- A healthy diet high in Calcium and Vitamin D
- Eye and skin protection
- A healthy lifestyle including daily physical activity and sports

Before the age of 10, window of opportunity for:

- Learning other languages
- Learning music

Where to go now?

T2T

or

A4L



Riders



STAGE

4

Train to Train (T2T)

Training literacy

Chronological age:

Girls 11± to 15 and boys 12± to 16
Early and late puberty

Training age: 2 to 4 years

School: 1st to 5th year high school
Grade 5 SNOWPASS

Skill: Building the physical engine

Competition: Club, RBC Riders, FIS and Non FIS regional events

Coach: Comp Intro

On snow ratio: Beginning of specialization;
Racing, SBX, Freestyle

Time on snow: 50 to 70 days

Priority: Training

TO DO (action plan)

- ✓ Implement athlete tracking system
- ✓ Create national curriculum for sport schools
- ✓ Implement FIS regional race series: Atlantic, East, Central, West

General description of stage

Good training habits are formed, on and off the snow. There should be an emphasis on strength conditioning, linked to the beginning of peak height velocity (PHV). See LTAD key 5

There should be greater individualization of fitness and on snow technical training. The focus should still be on training rather than competing so it is important that activities consist predominantly of high volume, low intensity workloads. Training volume should increase as athletes progress through this stage.

Key areas of focus:

- Specialization
- High volume, low intensity



LTAD window of accelerated adaptation to snowboarding – Physiological development

Entire phase:

- Strength for girls is 1 to 2 months after peak of PHV – 13 to 17 years old
- Strength for boys is 12 to 18 months after peak of PHV – 14 to 18 years old
- The endurance window is between 11 and 15 years old
- The 2nd speed window for boys is between 13 and 16 years old

Growth Spurt is the reference point for LTAD windows and program design. Beginning of PHV.
Boys: Growth of pubic hair
Girls: Beginning of menstruation

Parents

Coach

Clubs

Physical Development

Stabilization and foundation building

During this stage, we make or break an athlete. Proper monitoring of physiological adaptation to training is essential!

Continue monthly data mining for PHV.

Average age for girls reaching PHV is 12 and for boys 14.

PHV is the reference point to begin a weight training program. Refer to LTAD strength window.

Learn:

- To train in a gym
- Basic training exercises for core strength and injury prevention

Maintenance of complimentary sports for

- Skill
- Speed
- Endurance (aerobic capacity)
- Lifestyle

Introduce specific fitness framework

Early in stage, dry-land focus on the following:

1. Introduce free weights
2. Injury prevention exercises: high reps / low intensity focussing on execution
3. Core and stabilizer strength
4. Explosive arm and leg power
5. Maximize speed development
6. Introduction to physical testing (field test) and mini functional assessments 2 times per year

Initiate Fit To Train

Further in stage:

7. Max strength (women, and early developer men)
8. Strength endurance
9. Power/Speed endurance (Snowboardcross, alpine)
10. Build a level of fitness that allows the athlete to maintain high volume, high quality training
11. On snow training develops training endurance
12. Maximize stamina/aerobic capacity window of trainability, for recovery, regeneration and training capacity
13. Monitor training for high volume, low intensity sessions

Parents

Coach

Clubs

Psychological Development

The Specializing stage

Provide training and competition opportunities that focus performance on a preferred discipline

Mental skills introduced in the Sampling stage of athlete development should continue to be practiced, refined, and incorporated into many types of situations such as practice, dry-land training, before, and during competitions.

The athlete should:

- Take personal responsibility for training, preparation, performance and recovery
- Bring consistent effort to training and competitions
- Get involved with coaches in decision making (drills, exercises, training plan, etc.)
- Identify “what works” in the ideal performance state
- Be coachable: accept constructive criticism and work with other coaches or athletes
- Continue basic mental skills development: goal setting, imagery, self-awareness
- Be introduced to the idea of self-reflection after training or competitions
- Have a training diary

“The fight is won and lost far away from witnesses... behind the lines, in the gym, and out on the road, long before I dance under those lights.”

Muhammad Ali



Coach

Technical Development

Speed

Freeride everywhere

Refined motor skills acquisition: Steering – Edging – Pressure – Carving

1. Learn with increased speed:

- **Ankle** movements
- **Mid-weighting** movements
- Creating maximum pressure in the **beginning** of a turn
- **Managing** imbalance and instability with speed, while freeriding
- The C shape and Race shape of a turn

2. Develop and adjust, moving from understanding to demonstrating:

- Steering with **both legs** using the lower body to create the turn with a quiet upper body
- Edge grip using lower body angles
- **Sequencing of joints** and movements
- Creating and **releasing pressure**
- “On the fly” decision making skills for terrain adaptation

3. Consolidate turn shapes and **tactics** in varied conditions:

- Keeping the center of mass in the **inside** of the turn
- All the **gross motor skills** from stage 3
- Using instability to own advantage



Air**Skill Based****Manœuvre Based****Halfpipe**

*All stage 3 skills in the **SUPER PIPE** plus:*

- Uphill edge on take off and landing
- Clear vision of take off
- Clear vision in air
- Clear vision on landing
- Carving flat bottom with speed
- Maintain speed from wall to wall
- Line choice
- Control pressure in the transition
- Spin downhill and uphill with grab
- Fluid switch riding in pipe

Slopestyle

All stage 3 skills plus:

- Stability on take-off, during air and landing of jumps
- Show a variety of different grabs off different features
- Develop air sense
- Spin in all 4 directions for men and women
- Off-axis spins
- A variety of tricks on intermediate rails

All stage 3 skills plus:

- Pipe amplitude > 2 to 4 feet out
- High landing on transition
- All grabs: regular and switch
- With style
- Air-to-fakie
- Large booters: 180° and 540°
- Small booters: 720°

Early stage Super pipe

Women <2 feet men

- Straight airs > 4 to 6 feet with consistent amplitude all the way down the pipe

All airs and tricks with grab

- Nose / Tail
- Mute
- Frontside/Backside
- Indy
- Lean
- Stale
- Roastbeef
- Other

Top performer

4 directions spins in pipe:

- 360° > 4 to 6 feet
- 540° > 4 to 6 feet

Coach

Clubs

Training and competitive
environment**Single periodization to follow regional snow coverage:**

- **50 to 70 days on snow:** 40 to 55 days in training and freeriding, 10 to 15 days in competition or simulation
- **Training/Comp Ratio:** 75% training and freeriding/25% competition
- **On snow quantity and intensity:** 4 to 6 sessions/week with low intensity
- **Complimentary sports:** 2 to 4 sessions/week
- **Average duration of sessions:** 120 to 180 minutes
- **Competition format:** hybrid event/skills event, FIS or Pro with adult formats
- **Competition goals:** enjoyment/building towards provincial team selection
- **Competition venues:** RBC Riders, regional rail and slopestyle jams and comps, provincial games, provincial championship, FIS races and Junior Nationals

Lifestyle

Smoke-free environment and drug-free sport**Optimize training and education in:**

- Cultural and lifestyle habits
- Smoke-free environment
- Drug-free sport
- Safe sex practices
- Wearing a helmet while snowboarding
- Proper nutrition and hydration
- Self-management
- Taking responsibility for actions
- Respect for others
- The Alpine Responsibility Code
- Caring and maintenance of equipment

Where to go now?

T2C

or

A4L

STAGE 5

Train to Compete (T2C)

Competition literacy

Chronological age:

Freestyle 14+, SBX 16+ and Alpine 16+
Late adolescence and early adulthood

Training age: 4 to 6 years

School: College, CEGEP and University

Skill: Optimizing the physical engine

Competition: Provincial team and high performance clubs, training center

Coach: Comp Intro certified, Comp Dev coach (Formerly NCCP Level 3), sport science

Time on snow: 70 to 100 days

Priority: Training and competing

General description of stage

Training volume remains high while intensity increases with the importance of competitions.

The emphasis should be on developing individual strengths and minimizing weaknesses through modeling and nurturing physical, technical and tactical skills based around specific event demands.

Here you will find the quintessential top performer on a provincial team.

Key areas of focus:

- Versatility and strategy for competitions
- Single and double periodization yearly plans

TO DO (action plan)

- ✓ Build World Cup standard on-snow facilities
- ✓ Standardize physical testing protocol
- ✓ Reach full medal status in Canada Winter Games



LTAD window of accelerated adaptation to snowboarding – Physiological development

Growth spurt is the reference point for program design.

Early phase

- Speed window # 2 for boys
- Strength window for boys is 12 to 18 months after peak of PHV
- Strength window for girls is 1 to 2 months after peak of PHV

Coach

Administrators

Physical Development

Enter Fit to Perform

Developing maximum strength gain through the use of advanced weight lifting techniques.

Learn:

- Olympic lifting techniques
- Plyometric training
- Discipline specific exercises

Develop:

- Lower body and core stabilization
- Max strength
- Functional hypertrophy
- Anaerobic endurance
- Speed strength
- Periodized training programs

*Maintenance of
complimentary sports*

The goal is to have enough fitness to manage the rigors of competition and training without injuries or burnout.

1. Introduction to technology based training equipment
2. Well periodized training program, integrating physical training through conditioning camps, fall dry-land and in-season maintenance
3. Work with a strength coach and individualized training plan
4. Recognizing and preventing overtraining
5. Physical testing: 2 field tests/year – results play a major role in planning the training and competition season
6. Specific well planned methods of regeneration and recovery are identified and implemented
7. Begin double periodization yearly plans

Parents

Coach

Administrators

Psychological Development

The Investing stage

Learn to value competitions and putting performance first.

The athlete should:

- Consistently give 100% effort
- Revise mental skills such as imagery and visualization
- Develop activation and relaxation skills
- Develop positive self-talk and confidence
- Integrate mental skills in daily activities
- Gradually learn to self-coach and actively participate in his or her own development
- Reflect during post training and post competition to enhance future performances
- Work with coaches in a more collaborative manner
- Be introduced to
 - Media training
 - Distraction management (re-focusing skills)
 - Decision making

Athletes in this stage are learning to achieve balance with other important roles such as schools, university, part-time jobs, family, etc. They must be highly regulated in regards to their recovery activities to effectively meet the heavy demands of training and competitions.



Coach

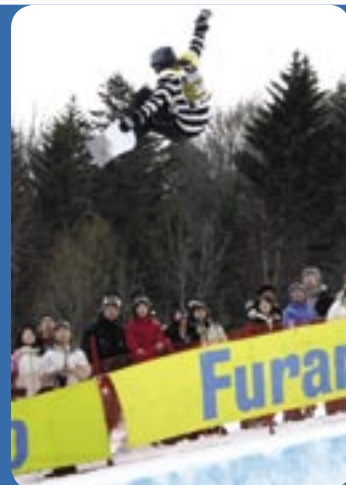
Technical Development

Speed

Carve everywhere

*All stage 4 recommendations plus
Switch carving on intermediate slopes and:*

1. **Learn** and pattern the transferability of performance from training to the competition arena:
 - To create early pressure in a turn
 - To maintain pressure longer throughout the turn
 - To take **advantage** of imbalance and manage instability with speed and fluidity
 - To use minimal effort for maximum gain
2. **Develop**, control and perform smoothly:
 - Race turn shapes
 - Snowboardcross airs
 - Self-analysis of technical performance
 - Passing and line gain tactics
3. **Consolidate** the skills racers have, by the sequencing of skills from platform of support to movement to edging to pressure and to the release:
 - All the refined motor skills from stage 4
 - The speed at which the movement sequence is performed
 - The transfer of speed from one turn to the next
4. **Improvise** turn shapes and **tactics** in various competition situations:
 - Recover line from errors
 - “On-the-fly” decision making in competition



Coach

Technical Development

Air**Super pipe and Slopestyle****Skills for Judging criteria's***All stage 4 skills plus:*

- Flat base take-off
- Patience on the take-off
- Early grab after first 1/4 spin
- Long grab until last 1/4 spin
- Increase and maintain speed
- Decision making and line adjustment
- Spin on multiple axis

FIS judging considerations***Key criteria's**

- Amplitude
- Difficulty
- Execution
- Variety

Supporting criteria's

- Pipe use
- Risk
- Progression
- Combination

*(2006 manual)

Manœuvres for competition points**Early stage****In a Super pipe***Women < 2 feet than men**All tricks grabbed, switch and regular, with style:*

- Frontside
- Backside
- Alley Oop
- Switch
- Vertical / Flat spins
- Misty / Mctwist
- Rodeo / Chuck
- Corked

Exit stage

- Straight airs >6 to 8 feet
- 360°, 540°, 720° > 6 to 8 feet
- Start 900°

Varying competition runs

Coach

Administrators

Training and competitive
environment**Single periodized and yearly plan:**• **70 to 100 days on snow:**

55 to 75 days in training and freeriding,
15 to 20 days in competition or simulation

• **Training/Comp/Recovery ratio:**

70% training and freeriding/30% competition/recovery

• **Quantity and intensity:** 6 to 9 sessions per week with high intensity• **Complimentary sports:** 1 to 2 sessions per week• **Average duration of sessions:** 120 to 180 minutes• **Competition format:** Adult formats• **Competition goals:** Put performance first• **Competition venues:** Pro, FIS, Provincial Championships,
Continental Tour, Canada Games, Junior Nationals,
Junior World Championships and Nationals

Coach

Lifestyle

The science and education of competing**Educate athlete in:**

- Recovery and regeneration principles
- Injury prevention training and behaviour
- Tapering and peaking strategies
- Adapting to new training and competition environments with relocation to new training centers
- Prioritization and yearly planning
- Lifelong skills of fair-play, dedication, integrity, leadership, time management, organization, pursuit of excellence, teamwork and health awareness
- Travel organization and smooth adaptation to other countries and cultures
- Being a team player during training and travel
- Choosing proper performance gear
- Maximizing board performance with specific tuning

Where to go now?

L2W

or

A4L

STAGE

6

Learn to win (L2W)

Excellence

Chronological age:

HP 17+ , SBX 18+ and Alpine 19+
Early adulthood

Training age: 6 to 8 years

School: University or trade

Skill: Event specific fitness

Competition: High Performance Provincial and National Programs (HPP), Project 2010

Coach: Comp Dev, Comp High Performance, NCCP Level 4 – 5, P.E.T.¹

Time on snow: 100 + days

Priority: Competing

General description of stage

Transition period between national level podiums and international level podiums.

This is the final stage of athletic preparation. Maturation is complete and all the performance factors should now be fully established to optimize performance on the international circuit.

Here you will find the quintessential top performer on the 2010 team.

Key areas of focus

- Build a winning strategy
- Individual needs
- Prevent overtraining with planned recovery

TO DO (action plan)

- ✓ Provide quality on-snow summer training
- ✓ Orientation to inter-continental events
- ✓ Ensure athletes and coaches have full financial support for training and competition

¹ Performance enhancement team.

Fit to perform

Specific individual training program based on:

- 6 “S’s” of physical training: **S**tamina (endurance), **S**trength, **S**peed, **S**kill, **S**uppleness (flexibility) and **S**tability
- 7 “C’s” of psychological training: **C**ohesion (team spirit), **C**ontrol (emotions), **C**oncentration, **C**entre (goal setting), **C**ondition (ideal performance state), **C**ritical reflection, **C**onfidence
- Discipline specific tactical skills



Administrators

Performance Enhancement Team

Physical Development

Athlete and coach learn to work with a full time Performance Enhancement Team (PET) to optimize individual needs.

Introduce:

- Discipline specific testing HP, SBX, PGS
- Monitor overtraining symptoms
- Full integration of sport psychology
- Detailed recovery and regeneration techniques are interegrated into training and competition

Develop:

- Functional hypertrophy
- Max strength through Olympic lifting and traditional free weight
- Speed and power through plyometric training and Olympic lifting

Maintain:

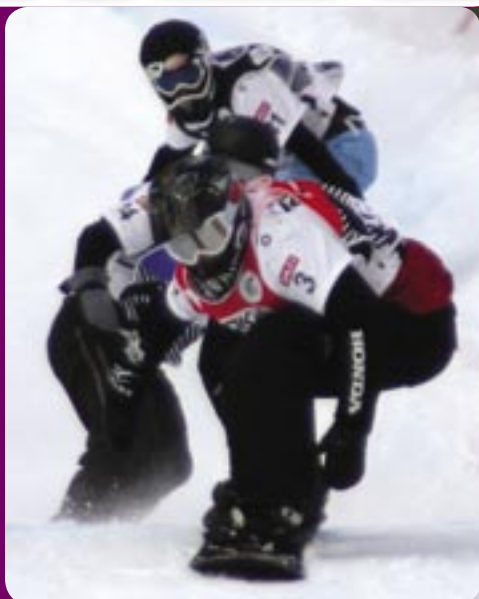
Stage 5 Fit to Perform recommendations

Fit to Win

Goal is to have muscular balance and strength that allows the athlete to focus on detailed event/individual specific performance.

Athlete is not playing fitness “catch-up”, or battling ongoing nagging injuries

1. Recognizing and preventing overtraining
2. Lab and field tests:
3 times per year
3. Functional evaluations:
1 to 2 times per year
4. Blood test: 2 times per year
(pre and post season)



Administrators

Performance Enhancement Team

Psychological Development

The Mastery stage

High knowledge level of self and sport

Individuals at the Mastery stage of athlete development usually have great perspectives. Great perspective means having:

- 1. Identity – Knowing who you are*
- 2. Solid values – A clarified and determined set of values*
- 3. True support – Sources of unconditional support*

The athlete should:

- *Be clear about life after sport so they can fully embrace their athletic career*
- *Be confident, motivated and highly competitive*
- *Have the constant desire to improve and tinker with their performance*
- *Be open to new horizons, different coaches and coaching methods*
- *Be creative and innovate*
- *Prepare and implement pre-competition and competition plans*
- *Learn to interact with a team of coaches, science professionals and media*

Athletes at the Mastery stage know “what works” for them. They have personalized mental skills that they are comfortable with.



Coach

Technical Development

Speed

Crossing the finish line first

1. **Develop**, pattern and refine:

- Acceleration skills
- Remedial technical progression strategies

2. **Consolidate** in all training and competing situations:

- Race tactics
- Competition strategies
- Critical reflection on past decisions

3. **Improvise**:

- Novel movements
- Tactics



Coach

Technical Development

Air**Super pipe and Slopestyle****Skills for a podium
+ all SPEED skills***All stage 5 skills plus:*

- Flat base take-off
- Control speed, on demand
- Full commitment to desired amplitude
- Maintain speed from one trick to the other
- Adapt and improvise "on the fly"
- Creative new tricks
- Large repertoire of tricks (6 to 8) that can be spun in 4 directions.

Slopestyle

- Iron man (spinning in all 4 directions)
- Creative lines

**Manœuvres for
competition points***Early stage***Women < 2 feet men**

- Straight airs > 8 to 10 feet
- 360° > 8 to 10 feet
- 540° > 8 to 10 feet
- 720° > 8 to 10 feet
- 900° > 8 to 10 feet
- Inverts > 8 to 10 feet

Top performer

- 360° > 12 feet
- 540° > 12 feet
- 720° > 12 feet
- 900° > 12 feet
- Inverts > 12 feet
- Start 1080's

**All airs performed
at 2, 4, 6 and at 8 feet**

Coach

Administrators

Training and competitive
environment**Double periodized multi year plan:**

- **100 to 150 days on snow:** 70 to 110 days in training and freeriding, 21 to 33 days in competition or simulation
- **Training/Comp/Recovery ratio:**
70% training and freeriding/30% competition/recovery
- **Quantity and intensity:** 9 to 12 sessions per week with high intensity
- **Complimentary sports:** As needed
- **Average duration of sessions:** 120 to 180 minutes
- **Competition format:** Adult formats
- **Competition goals:** Winning Continental Cup events and qualify for finals on World Cup
- **Competition venues:** Pro, Provincial Championships, Continental Tour, Nationals, World University Games, World Cup and World Championships

Coach

Lifestyle

Lifestyle is set for success

Athlete has acquired all skills necessary to compete with success

Maximize ancillary capacities of competing, knowing:

- How to warm up and cool down
- How to stretch and when to stretch
- How to optimize nutrition and hydration
- How to use mental preparation
- The importance of regeneration and recovery
- How and when to taper and peak with self-monitoring
- How to plan pre-competition, competition and post competition routines
- How to maximise board performance with specific tuning
- How to travel



Where to go now?

T2W

or

A4L

STAGE

7

Train to Win (T2W) and Winning for a Living

Excellence

Chronological age:

HP: 20+, SBX: 22+, Alpine: 24+

Training age: 8 to 12 years

Skill: Event specific fitness

Competition: World Cup, World Championship, Olympic teams

Coach: National team coach, Comp High Performance, NCCP Level 4-5, P.E.T.

Time on snow: 150+ days

Priority: Winning

General description of stage

Sport as a career

New movements are composed and designed from personal interpretation.

This stage is identical in formulation to Learn to Win, except athletes have gained experience of competing in pressure situations at the highest possible level and are ready to win big again and again!

Athletes now focus on the preservation of high quality consistent performances and injury prevention strategies to be “winning for a living”.

Key areas of focus:

- Optimal preparation for high importance competitions
- Winning

TO DO (action plan)

- ✓ Establish a European based training center
- ✓ Comprehensive P.E.T support
- ✓ Full time coaching team per discipline



Mastery

Creative and innovative strengths in:

- Psychology
- Strategy
- Training specificity
- Technology

Administrators

Performance Enhancement Team

Physical
Development

Maintain stage Fit to Perform and Fit to Win recommendations

Psychological
Development

The Mastery stage – Winning for a living

Athletes at this stage should be mature enough to deliver an optimal performance on demand.

Some characteristics of multiple champions include:

- *Self-confidence, motivation (intrinsic or self) and competitiveness*
- *Independent*
- *Willing to learn new ways of doing things and always trying to improve*
- *Creative and innovative*
- *Strong work ethic and mentally tough*
- *Focused on the “big picture” (perspective)*

Coach

Technical Development

Speed

Composing new movements

1. Consistency in competition:

- *Quality of execution*
- *Performance statistics*

2. Consolidate under pressure:

- *Line choice*
- *Acceleration skills*
- *Decision making*

3. Compose and design a new reference model from personal interpretation of:

- *Technique*
- *Tactics*
- *Strategies*

Air

Super pipe

Skills for a medal + all SPEED skills

All stage 6 skills plus:

- Flat base take-off
- Up-hill edge landing
- Equal weight on both feet landings
- All with early and long grabs
- Patience on take-off

Manœuvres for competition points

Women jump 2 feet less than men

- All grabs > 12 feet +
- 540° > 12 feet +
- 720° > 12 feet +
- Inverts > 12 feet +
- 900° > 12 feet +
- 1080° > 12 feet +
- Start 1260°

All airs with consistent amplitude all the way down the pipe

All airs performed at 2, 4, 6 and at 8 feet

Winning runs Olympic Winter Games 2006

Men: Shaun White

Lien + McTwist mute grab (traditional McTwist) + Frontside 10 stalefish + Cab 10 Nose + Frontside 9 frontside grab + Backside 9 mute grab

Ladies: Hannah Teter

Frontside 5 with a stalefish grab + Method + Frontside 9 with backside grab + Indy + Frontside 3 with frontside grab + Cab 5 with switch stalefish grab, or backside grab depending on how you look at it,,,

Projected Olympic Winter Games 2010

Men:

16 feet out rotations + everything grabbed, including the 1260 + consistent amplitude

Women:

14 feet out rotations + everything grabbed including the 1080 + consistent amplitude

Coach

Administrators

Training and competitive
environment

**Multiple periodization with quadrennial plan
+ February peak day**

Training environment mimicking competition environment:

- **150+ days on snow:** 100 days in training and freeriding, 50 days in competition or simulation
- **Training/Comp/Recovery volume:** 60% training and freeriding/40% competition/recovery
- **Quantity and intensity:** 10 to 12 sessions per week with high intensity
- **Complimentary sports:** As needed
- **Average duration of sessions:** 120 to 180 minutes
- **Competition format:** Adult formats
- **Competition goals:** Multiple World Cup wins + WCH win + OWG win
- **Competition venues:** Add Olympic Winter Games

Coach

Lifestyle

Lifestyle is set to win

Athlete has acquired all skills necessary to Win for a Living

Maximize ancillary capacities in a sporting career, considering:

- *Interpersonal skills*
- *Leadership*
- *Problem solving*
- *Critical thinking*
- *Ethical behaviour*
- *Education*
- *Equipment and technology*
- *Financial stability*



STAGE

8

Active for Life (A4L)

Life is precious

Age: Any age, immediately after leaving the competition arena or after stage 3

Skill: Any skill level/ physical literacy

Competition: Retirement/transfer to another sport/FIS masters

Coach: Any

Time on snow: Rider's choice

Priority: Healthy lifestyle

General description of stage

At this stage, the participant moves from competitive sport to lifelong physical activity and sport participation through age group competition or simply recreational enjoyment.

AREAS OF DEVELOPMENT

Physical

Psychological

Transfer of knowledge

SPECIFICATIONS

Smooth transition from heavy training loads to active living:

- Minimum of 60 minutes moderate daily activity or 30 minutes of intense activity for adults 3X/week
- Social sport participation and stage dancing at reggae shows

Move from competitive sport to recreational activities

Modeling ancillary capacities in life:

- Interpersonal skills
- Leadership
- Problem solving
- Critical thinking
- Ethical behavior
- Financial stability

Progressively redirect athlete's career and:

- Move to sport careers
- Volunteer
- Become a Pro rider
- Get involved in coaching
- Judge competitions
- Learn to become ski/snowboard patrol or guide
- Become a snowboard or ski teacher
- Work in event organisation
- Work in media: written, broadcasting, video, etc.
- Work in sport administration: club, regional, provincial, national, international
- Take position in the Industry: research and development, sales, marketing, etc.
- Become part of mountain staff
- Complete education



Snowboard:

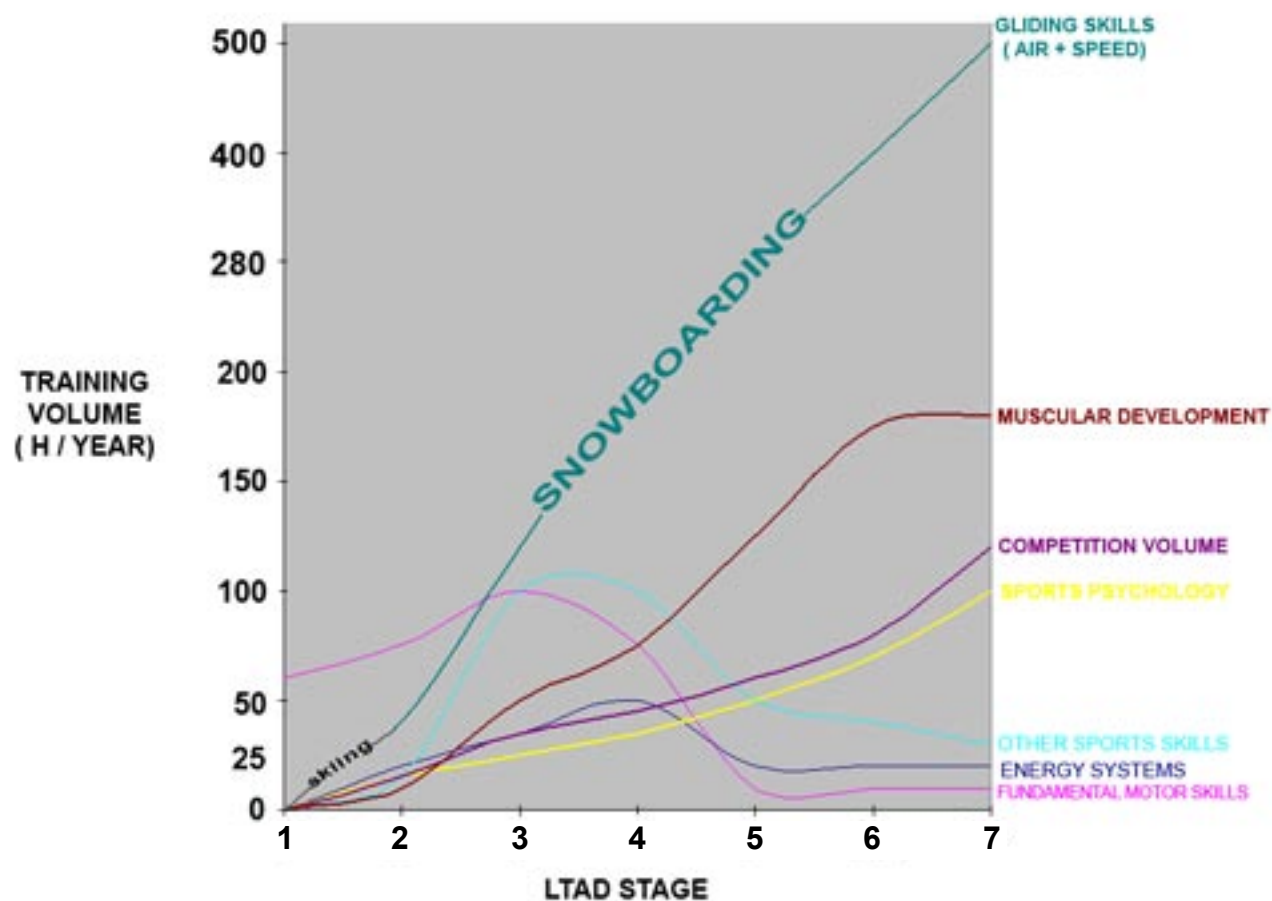
Long-Term Athlete Development program (LTAD)

Suggested development of performance factors

Development Stages	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
	Active start AS	Fundamentals FUN	Learn to ride L2R	Train to train T2T	Train to Compete T2C	Learn to Win L2W	Train to Win T2W
Chronological ages: Alpine					16 +	19 +	24 +
Chronological ages: snowboard cross	Boys 0-5 Girls 0-5	Boys 6-9 Girls 6-8	Boys 9-12 + Girls 8-10	Boys + / - 12-16 Girls + / - 11-15	16 +	18 +	22 +
Chronological ages: Freestyle and Half-Pipe					14 +	17 +	20 +
New NCCP/ CSCP	SNOW SCHOOL	SNOW SCHOOL	BASIC coach (L 1) Comp INTRO (L2) CASI Instruction	Comp INTRO (L2)	Comp-DEV (L3)	Comp-DEV (L3)	Comp-HP (L4)
Periodization	none	Simple	Simple	Simple	Simple or Double	Double	Multiple
Training vs comp. vs recovery ratio	none	90 / 10	85 / 15	75 / 25	70 / 30	70 / 30	60 / 40
Local and regional comps		clubs					
Provincial comps							
National Comps							
International Comps / World Cup / Junior Championships				Juniors			
World Championships / Olympics							
Global training orientation	Basic movement skills ABC's	Basic snow sliding sports + consolidation of ABC's	All Basic Snowboard skills	Develop training habits.	Consolidate training habits	Competition = part of yearly planned training	Competition = part of yearly planned training
Specific training orientation	Fun and pleasure	Fun and pleasure	Experience races in multiple snowboard disciplines	Begin competition in team environment	Advanced mental skills	International competitions, specific to one or multiple disciplines	High performance, specific year round physical training
ENERGY SYSTEMS							
Aerobic Endurance			D	D	P / C	P / C	M
Aerobic Power				D	P / C	P / C	M
Anaerobic Endurance and Power				D	D	P / C	M
Speed		D	D	D	P / C	P / C	M
Approximate volume (H / year)	0	20	35	50	20	20	20
MUSCULAR DEVELOPEMENT							
Strenght-Endurance		D	D	D	P / C	P / C	M
Hyperthrophy				D	D	D	M
Maximal strenght			D	D	D	D	M
Power-speed / Power-speed endurance			D	D	D	P / C	M
Flexibility		D	D	P / C	P / C	P / C	M
Approximate volume (H / year)	0	10	50	75	125	175	150
MOTOR SKILLS							
Reaction speed	D	D	D	D	P / C	P / C	P / C
Agility	D	D	D	D	P / C	P / C	P / C
Mobility	D	D	D	D	P / C	P / C	P / C
Coordination	D	D	D	D	P / C	P / C	P / C
Spatial orientation	D	D	D	D	P / C	P / C	P / C
Rythm	D	D	D	D	P / C	P / C	P / C
Motor balance	D	D	D	D	P / C	P / C	P / C
Approximate volume (H / year)	60	75	100	75	10	10	10
SNOWBOARD SKILLS							
Fundamental, basic skills (La glisse)	L	L	D	D	P / C	P / C	P / C
Fundamental, advanced skills		L	L	D	D	P / C	P / C
Discipline specific skills (Pipe, GS, SBX)		L	D	D	D	C	C
Tactical skills		L	L	D	D	C	C
Approximate volume (H / year)	0	40	120	200	280	400	500
OTHER SPORTS SKILLS							
Multi-sport skills / other sports (Personal choice)	40	75	75	75	50	50	50
Approximate volume (H / year)	40	75	100	100	50	40	30
Sports psychology							
Team spirit		L	D	D	P / C	P / C	P / C
Emotions : Activation / Relaxation / Motivation			L	L/D	D	P / C	P / C
Concentration: Vizualization / Focus			L	L/D	D	P / C	P / C
Goal setting: S.M.A.R.T. E.R.			L	L/D	D	P / C	P / C
I.P.S.: pre-competition and competition plan			L	L/D	D	D	D
Critical reflexion			L	L/D	D	D	D
Approximate volume (H / year)	0	15	25	35	50	70	100
Total Training Volume (H / Year)	100	235	430	535	535	715	810
Competition volume	0	15	35	45	60	80	120
Total Volume (H / Year)	100	250	465	580	595	795	930

Legend		
	Learn	L
	Develop	D
	Consolidate	C
	Perfect	P
High importance	Integrate	I
Considerable importance	Maintain	M
Moderate importance	Recuperate	R

Suggested training volumes per stage



Sample annual snowboard training plan

Part 1 of 2

Athlete	Dan : 2005-2006 / Age: 19 / Discipline: SBX / Provincial Team																												
LTAD stage	5: Train to compete																												
# Days on snow:	90																												
Performance goals	Make top 10 Canadian Nationals																												
Training priorities	Plyometric, Maximal strength, Speed-strength, speed-strength endurance, speed and carving, park and pipe skills, Pre-competition and competition plan																												
Months	May		June				July				August				September				October				November						
Weeks	May 16 - 22	May 23 - 29	May 30 - June 5	June 6 - 12	June 13 - 19	June 20 - 26	June 27 - July 3	July 4 - 10	July 11 - 17	July 18 - 24	July 25 - 31	August 1 - 7	August 8 - 14	August 15 - 21	August 22 - 28	August 29 - Sept. 4	September 5 - 11	Sept 12 - 18	Sept 19 - 25	Sept 26 - Oct 2	Oct 3 - 8	Oct 9 - 16	Oct 17 - 23	Oct 24 - 30	Oct 31 - Nov 6	Nov 7 - 13	Nov 14 - 20		
Importance of competitions (1;3;5)																													
Training camps									Glacier: BC					Chili															
Physical testing																													
Medical evaluation																													
Technical / tactical evaluation																													
Psychological evaluation																													
Macrocycle	1 Macrocycle																												
Period	Preparation																												
Phase	General #1				Specific #1				General #2				Specific #2				General #3				Specific #3								
Mesocycles	Conditioning				GP #1		Spec. Prep. #1		GP #2		Spec. Prep. #2		General Prep. #3				GP#4		Spec. Prep. #3		Tapering #1								
Microcycles	1	2	3	4	1	2	1	2	3	1	2	3	1	2	3	4	1	2	3	4	1	2	1	2	3	1	2		
Energy systems																													
Aerobic Endurance	L	L	L	L																									
Anaerobic Power : plyometrics					L	L	L	L	L	D	D	D	M	M	M	M	D	D	D	D	D	D	M	M	M	D	D		
Volume (hours)	1	1	1	1	3	3	1	1	1	2	2	2	1	1	1	1	2	2	2	2	2	2	0,5	1	1	2	2		
Muscular development																													
Strength endurance	D	D	D	D	D	D																							
Hypertrophy					D	D	M	M	M	D	D	D	M	M	M	M							D	D	D				
Maximal strength																													
Speed strength / Speed strength endurance	D	D	D	D	D	D	M	M	M	D	D	D	M	M	M	M	D	D	D	D	D	D	D	D	D	D	D		
Flexibility	D	D	D	D	D	D	M	M	M	D	D	D	M	M	M	M	D	D	D	D	M	M	D	D	D	D	D		
Stabilizer	D	D	D	D	D	D	M	M	M	D	D	D	M	M	M	M	D	D	D	D	M	M	D	D	D	D	D		
Volume (hours)	2,5	2,5	2,5	3	3	3	2	3	2	3,5	3,5	3,5	2	2	2	2,5	3	3	3	3	6	8	2,5	2,5	2,5	3	3		
Technical / tactical skills																													
Snowboard: fun																													
Snowboard : Speed and carving																													
Snowboard : park and pipe																													
Snowboard: SBX course / tactical																													
Skateboard, wakeboard (off-season)	D	D	D	D	D	D				D	D	D					D	D	D	D	D	D	D	D	D	D			
Volume (hours)	2	2	2	2	2	2	12	12	12	2	2	2	11	12	11	13	2	2	2	2	2	2	2	2	2	2	0	0	
Competition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Psychologic skills																													
Motivation / Confidence	D	D	D	D	D	D	I	I	I	D	D	D	I	I	I	I	D	D	D	D	D	D	P	P	P	D	D		
Concentration / Visualization	D	D	D	D	D	D	I	I	I	D	D	D	I	I	I	I	D	D	D	D	D	D	P	P	P	D	D		
Activation / Relaxation	D	D	D	D	D	D	I	I	I	D	D	D	I	I	I	I	D	D	D	D	D	D	P	P	P	D	D		
Pre-competition plan																													
Competition plan																													
Volume (hours)	0,5	0,5	0,5	0,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	3	3	3	3	1,5	1,5	1,5	1,5	3	4	1,5	1,5	1,5	1,5	1,5		
TOTAL VOLUME (hours)	6	6	6	6,5	9,5	9,5	16,5	17,5	16,5	9	9	9	17	18	17	19,5	8,5	8,5	8,5	8,5	13	16	6,5	7	7	6,5	6,5		

Preparatory competition	
Regular / qualifying competition	
Important competition	
Crucial competition (Peak performance)	

Training Camps	
Evaluation: medical, physical, psychological, etc.	
Critical importance	
High importance	
Moderate importance	

Learn	L
Develop	D
Consolidate	C
Perfect	P

Sample annual snowboard training plan

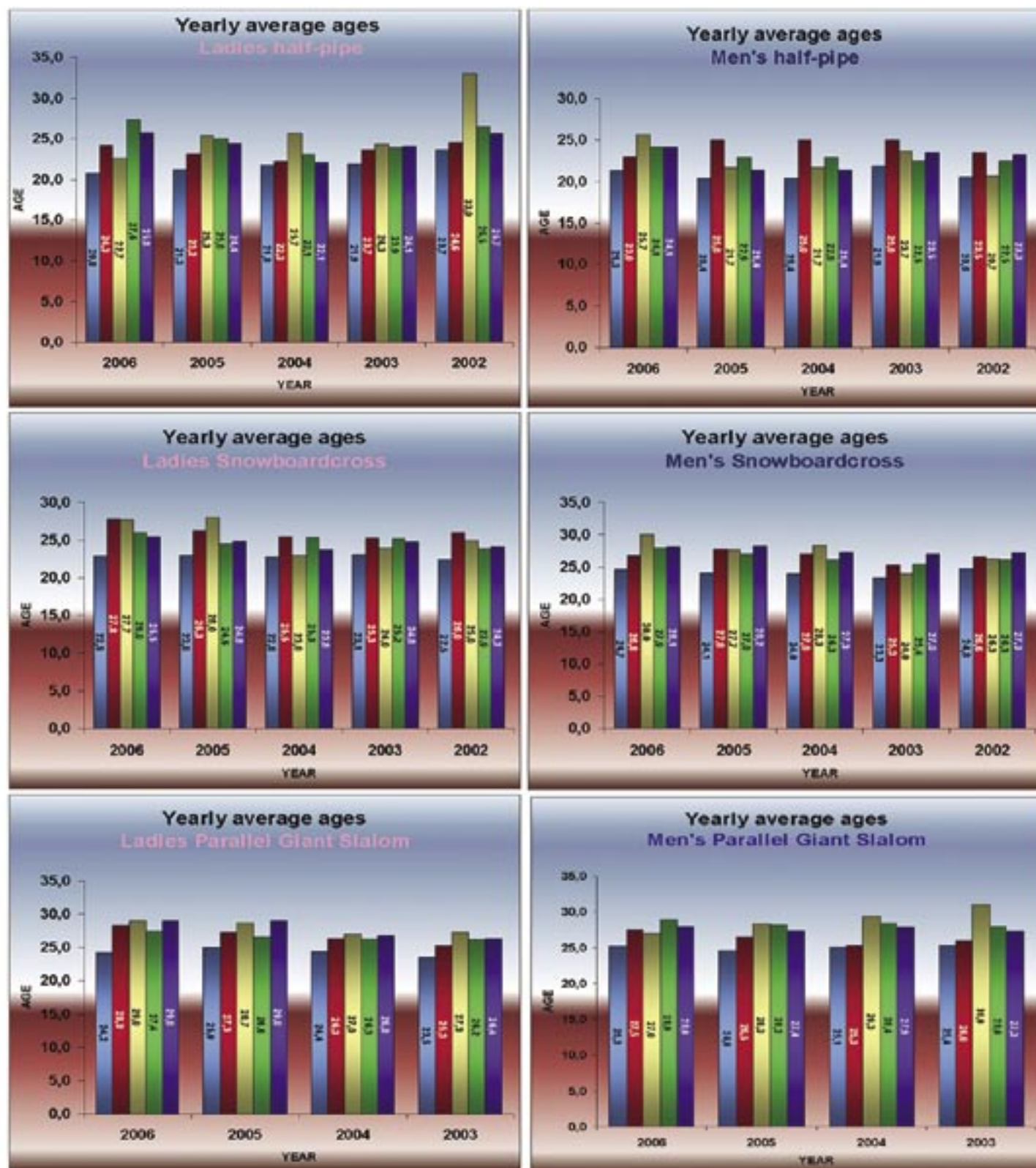
Part 2 of 2

Dan : 2005-2006 / Age: 19 / Discipline: SBX / Provincial Team																					Athlete			
5: Train to compete																					LTAD stage			
90																					# Days on snow:			
Make top 10 Canadian Nationals																					Performance goals			
Plyometric, Maximal strength, Speed-strength, speed-strength endurance, speed and carving, park and pipe skills, Pre-competition and competition plan																					Training priorities			
Nov. December January February March April May																					Months			
Nov 21 - 27 Nov 28 - Dec 4 Dec 5 - 11 Dec 12 - 18 Dec 19 - 25 Dec 26 - Jan 1 Jan 2 - 8 Jan 9 - 15 Jan 16 - 22 Jan 23 - 29 Jan 30 - Feb 5 Feb 6 - 12 Feb 13 - 19 Feb 20 - 26 Feb 27 - March 5 March 6 - 12 March 13 - 19 March 20 - 26 March 27 - April 2 April 3 - 9 April 10 - 16 April 17 - 23 April 24 - 30 May 2 - 8 May 9 - 15																					Weeks			
Canada NA FIS NA NA JWS NA NA FIS FIS CN JWC JWC																					Importance of competitions (1;3;5)			
																					Training camps			
																					Physical testing			
																					Medical evaluation			
																					Technical / tactical evaluation			
																					Psychological evaluation			
1 Macrocycle																					Macrocycle			
Specific # 3 Pre-Competition Competition Transition																					Period Phase			
Spec. Prep. #4 Spec. Prep #5 Pre-Comp #1 SP #6 Competition # 1 Tapering #2 Comp #2 Recovery																					Mesocycles			
1 2 3 1 2 3 4 1 2 3 1 2 1 2 3 4 1 2 1 2 3 1 2 3 4																					Microcycles			
																					Energy systems			
D D D M M M M M M M M M M M M M M M M M M R R R R																					Aerobic Endurance			
1 0 0 0 0																					Anaerobic Power : plyometrics			
																					Volume (hours)			
																					Muscular development			
																					Strength endurance			
D D D D M M M M M M M M M M M M M M M M M R R R R																					Hypertrophy			
D D D M M M M M M M M M M M M M M M M M M R R R R																					Maximal strength			
D D D M M M M M M M M M M M M M M M M M M R R R R																					Speed strength / Speed strength endurance			
D D D M M M M M M M M M M M M M M M M M M R R R R																					Flexibility			
3 1,5 1,5 1,5 1,5 1,5 1,5 2 2 1,5 1,5 1,5 1,5 1,5 1,5 1,5 1,5 1,5 1,5 1 1 1 1																					Stabilizer			
																					Volume (hours)			
																					Technical / tactical skills			
I I I D D D D D D D D D M M M M M M M M M M R R R R																					Snowboard: fun			
I I I D D D D D D D D D M M M M M M M M M M R R R R																					Snowboard : Speed and carving			
I I I D D D D D D D D D M M M M M M M M M M R R R R																					Snowboard : park and pipe			
																					Snowboard: SBX course / tactical			
																					Skateboard, wakeboard (off-season)			
10 10 10 12 12 12 12 9 4 2 9 9 7 7 7 7 7 10 10 9 9 0 0 0 0																					Volume (hours)			
0 0 0 5 5 0 0 5 5 5 0 0 5 5 5 5 7 0 0 7 7 0 0 0 0																					Competition			
																					Psychologic skills			
I I I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I R R R R																					Motivation / Confidence			
I I I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I R R R R																					Concentration / Visualization			
I I I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I M/I R R R R																					Activation / Relaxation			
D D D D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I R R R R																					Pre-competition plan			
D D D D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I D/I R R R R																					Competition plan			
2,5 2,5 2,5 2,5 2,5 2,5 2,5 2 2 2 2 2 2 2 2 2 2 2 2 0 0 0 0																					Volume (hours)			
16,5 15 15 22 22 17 19,5 14 11,5 13,5 13,5 16,5 16,5 16,5 16,5 18,5 14,5 14,5 20,5 20,5 1 1 1 1																					TOTAL VOLUME (hours)			

Integrate	I
Recuperate	R
Maintain	M
Volume: amount of hours dedicated to...	10

NA	= NORAM Cup
FIS	= FIS level provincial Cup
CN	= Canadian Nationals
JWS	= Junior Word Selection
JWC	= Junior Word Cup

Average age on World Cup



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