

RACING ON SKATES

Towards developmentally appropriate programming for speed skaters of all ages.



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Canada 

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Speed Skating Canada is about the people who provide the leadership and that are the backbone of the organizations excellence. The Competition and Event Review Team brought over 160 years of experience as skaters, parents, coaches, boards and committee members. The team benefited from a diversity of educational and professional backgrounds and expertise. The Team included:

David Gilday, BA, University of Western Ontario, retired Director of College and Career Development, Department of Education North West Territories

Sean Ireland, BSc, University of Calgary, Associate Director of Sport, Calgary Olympic Oval

Steve Harris, MPE, University of New Brunswick, Sport and Recreation Consultant, New Brunswick

Dany Lemay, BSc, Concordia, Consultant - Asset Consulting Services

Jim McClements, PhD, University of Alberta, Retired Professor of Kinesiology, University of Saskatchewan

Nicole Slot, MA, University of Calgary, Research Assistant, Alberta Cancer Board

Most of the Team have participated as athletes, coaches and officials at every level from school speed skating to club races, to Masters' competitions and to the Olympics Games. They have a diverse and strong educations. Moreover, their careers represent a diverse mix of sport, government, education and business. The Team worked hard to understand the factual foundation of the LTPAD, deliberated issues in light of this wealth of experience and expertise. The result is recommendations that are compatible with the theory and their collective experience.

The Review Team was established by the Long Term Participant and Athlete Development Model Implementation Working Group. For the work that the Review Team has completed, it operated under Terms of Reference that were established by the LTPAD Implementation Working Group. Throughout the process the Working Group provided and will continue to provide, as we move forward, leadership, support and direction and it is to the Working Group that the Review Team reported. The Working Group consisted of Dennis Duggan, Co-Chair, Jim McClements, Co-Chair, Nancy Goplen, Yves Hamelin, and Robert Dubreuil.

Integral to the work of both the Working Group and the Review Team was the leadership, support and aid of two SSC professional staff, Brian Rahill and Douglas Duncan. They were full participants in the process. Their contribution to the work of the Review Team and the completion of the Review Team Report was invaluable. They both deserve our thanks.

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Finally, the Review Team were clearly supported by the President Marie-Claire Rouleau and the entire SSC Board of Directors, Jean R Dupré, Director General, SSC's Standing Committees, SSC's staff, its coaches and others who provided information and reviewed materials. This support came in the form of encouragement and direct financial support. It is clear that SSC is committed to developmentally appropriate programming. Without this support the Review Team could not have completed this Review in a timely fashion.

EXECUTIVE SUMMARY

Process

Speed Skating Canada (SSC) published *Find Your Edge* as a commitment to adopting the Long Term Participant Athlete Development Model (LTPAD).

A natural consequence of this commitment is the Competition and Event System Review and implies SSC fosters **Developmentally Appropriate Programs**.

The major challenge for every sport group will be to link programming to the best available growth and development information and requires reconsideration of all SSC programming aspects in light of the research information. While speed skating or racing on skates has a rich tradition in Canada, the challenge is to use established knowledge rather than tradition to make program decisions. Developmentally Appropriate Program includes competition but as “a good servant not a poor master”.

While speed skating or racing on skates has a rich tradition in Canada, the challenge is to use established knowledge rather than tradition to make program decisions. **Developmentally Appropriate Program** includes competition but as “a good servant not a poor master”.

Guiding Principles for Competition Review were developed based on SSC values, respect for individuals and the LTPAD model to be an objective foundation for event/competition recommendations.

Developmental Constructs summarize the research in specific domains and link speed skating to science. The constructs are primarily based on the LTPAD model but were reorganized into specific domains: physical/anatomical, physiological, neurological, cognitive, psychological, social affiliation and play. Periodization, age issues, facilities and equipment were also organized into developmental constructs while non-developmental factors such as social issues and trends (volunteers, family structure and sustainability) were also considered. While the Competition Principles are the foundation of program, the Developmental Constructs are the primary program pillars.

Developmental Recommendations integrated the domain specific Developmental Construct continuums into the multi-domain sport program issues. The challenge of linking program to the LTPAD evidence requires consideration of specific program factors as developmental continuums. Program factors considered were activities and distances, age categories, nature of feature events and competitions (including national championships and international events), long track and short track issues, equipment and facilities and social issues. To emphasize the importance of the Active for Life stage of development it was addressed as a separate section. The Developmental Recommendations became the second set of pillars for program review.

Program Recommendations integrate the Developmental Recommendation program factor continuums into stage specific programs matrices. These program factors were stage, preparation and event objectives; how results are used; event formats; windows of trainability; educational considerations; competition format; as well as equipment and preparation guidelines. The Program Recommendations are like floor plan for specific LTPAD stages built on the foundation of Competition Principles and supported by the Developmental Construct and Developmental Recommendation pillars.

The Competition Principles, Developmental Constructs and Developmental Recommendations are all based on LTPAD research. The commitment to the LTPAD means they should direct and guide SSC until the research provides better information. The Program Recommendations are innovative and creative ideas based on the science based LTPAD model. They serve as the best advice the Review Team can provide to SSC for Developmentally Appropriate Programming. The status quo and other options to the Program Recommendations can also be considered but only if they are supported by the LTPAD model and other research data.



Key Recommendations

Following is a summary of the recommendations for developmentally appropriate SSC programs painted in broad strokes. To briefly describe the overall picture, the dynamic and innovative recommendations are presented in developmental continuums. This summary is an overview and the reader is encouraged to read the report for specific details.

Distances and Activities:

1. The emphasis was physical literacy and learning to speed skate rather than racing and elite performance for younger developmental stages. This approach considers developmentally appropriate program for the stage objectives. Early or entry stages include skill testing and dynamic racing formats such as clockwise racing.
2. Activities and distances should follow a continuum from learning to skate to international racing.
3. The distances raced were reviewed and major changes recommended for skaters until they have finished growing. Up to and including puberty these must be compatible with windows of trainability. Most recommended distances are shorter or longer than traditional distances.
4. Post puberty skaters race International Skating Union (ISU) distances.
5. The 'Active for Life' participants race international distances as well as longer events such as marathons.

Age Categories:

1. 'Ability Meet' formats are recommended for younger children with boys and girls competing together to ensure developmentally appropriate events dictated by windows of trainability. The primary grouping would be by distance then by performance within the distance groups.
2. Gender-specific one year age categories are recommended during puberty to account for growth variability during puberty.
3. Post puberty skaters compete in ISU age categories.
4. Two new senior age categories are recommended (Neo Senior – 1, 19 to 20 years old and Neo Senior – 2, 21 to 23 years old). SSC is very successful internationally and elite skaters have longer and productive careers, which makes it difficult for graduating juniors to have meaningful competitions. These age categories will allow new seniors to be recognized.
5. 'Active for Life' participants would race in age appropriate internationally defined ages classes.

Nature of Feature Events and Competitions:

1. The appropriate level and type of competition as well as the progression from one level to another is critical to each athlete's long-term development.
2. Competition must be meaningful to each competitor. Meaningful implies a chance to succeed and even win but to be successful in a meaningful way requires uncertainty and excitement.
3. Formal SSC regional events are recommended to facilitate developmentally appropriate participation during puberty. These events would replace national championships for certain ages. In addition to being developmentally appropriate, other important reasons such as increasing participation opportunities and the real costs of participating were considered. Regional competitions would fit into a continuum of opportunities from club events, to provincial, to national events to international competitions and extending to the lifelong participation.
4. Junior skater age participation in international events must be developmentally appropriate.
5. Participation in multisport events such as the Olympic Games and Canada Winter Games must be developmentally appropriate.

Active For Life:

1. SSC must consider creative and proactive strategies to support the 'Active for Life' stage of development to realize the potential for SSC strategic plan pillars of holistic development, podium performance and growth.
2. Lifelong activity and participation including traditional racing, health and fitness activities, coaching, officiating and other forms of participation were considered for the 'Active for Life' stage. This is complex and was addressed in an independent section.
3. Regular competitions are recommended for this stage, but new initiatives with more health based events and other forms of participation should also be considered.

Equipment and Facilities:

1. Specific skate types are recommended for specific developmental stages. For the early stages of development, hockey skates are recommended. For succeeding stages the type of speed skate recommendations are based on skill development and competency.
2. Smaller track sizes are recommended for younger skaters. There are three primary reasons: ability of organizations to host regional championships, safety and specificity of learning principles.
3. Appropriate uniforms for stages of development are recommended. Factors considered included accessibility (cost) and self concept issues. Track suit types of uniforms are recommended for the earlier stages.

Social Factors:

1. SSC support and promote innovative half day sport festivals. Where feasible, SSC should collaborate with other sports in these festivals. These events could focus on more specific populations and include as much or more activity for each participant in a shorter time window than the current two day competitions.
2. SSC consider a proactive approach to recruiting, rewarding and utilizing volunteer time. SSC is a volunteer based organization and trends in volunteering are changing rapidly.
3. Issues such as carbon footprint, travel costs and other environmental issues should be considered by SSC.

With the exception of 'Active for Life' the above summary has deliberately not used the specific stage labels in describing these recommendations. The goal was to emphasize the developmental continuums. However the program recommendations in the report integrate and organize all the developmental recommendations in a stage by stage format.

What Next?

The above report will be submitted to SSC at the 2009 AGM with appropriate resolutions.

The resolutions and report will then become the property of the SSC Board and the appropriate SSC committees, who will be tasked with making formal program recommendations for the 2010/11 season.

The SSC Board and the appropriate SSC committees will then prepare the formal program changes to be considered by the membership at the 2010 AGM for the 2010/11 season.

What advice would you give to young speed skaters: *"Don't get too caught up in winning medals and getting good 'results', but focus on learning good technique, training hard and developing a good work ethic. I wasn't very good or fast when I was young but I really loved to skate and learned to work hard and be patient. Listen to your coach, always, always, always respect your competitors, be gracious in victory and in defeat and never stop getting better."* Kristina Groves

This Table of Content is interactive.
 Click on the **title** or **page number** to forward to the page of interest.
 To come back to the this page click the **red banner** at the top of the page.

TABLE OF CONTENTS

SPEED SKATING CANADA COMPETITION AND EVENT REVIEW REPORT

1. GLOSSARY OF TERMS	
1.1 Speed Skating Terms	9
1.2 Growth and Development Terms	11
2. INTRODUCTION	
2.1 Why Review SSC Competition Structure?	14
2.2 What is the Long Term Participant and Athlete Development Model (LTPAD) Model?	14
2.3 How does the Competition and Event Review relate to the Speed Skating Canada Vision?	16
2.4 What is Speed Skating?	16
2.5 Competition and Event Review: Challenge and Opportunity?	17
2.6 What is a Meaningful Competition?	17
2.7 Do we define SSC by competition or do we use competition to achieve SSC core purpose, vision, values and strategic objectives?	17
3. BACKGROUND	18
4. TERMS OF REFERENCE	19
5. LOGIC STRUCTURE	20
6. GOVERNANCE	21
7. GUIDING PRINCIPLES FOR COMPETITION AND EVENTS	22
8. DEVELOPMENTAL CONSTRUCTS	23
9. DEVELOPMENTAL RECOMMENDATIONS	28
10. STAGE by STAGE DEVELOPMENTALLY APPROPRIATE PROGRAMMING RECOMMENDATIONS	33
10.1 FUNdamentals	34
10.2 Learning to Train	36
10.3 Training to Train (Pre-PHV/PHV)	38
10.4 Training to Train (PHV/Post-PHV)	40
10.5 Learning to Compete	42
10.6 Training to Compete	44
10.7 Learning and Training to Win (Long Track)	46
10.8 Learning and Training to Win (Short Track)	48
10.9 Active for Life	50
10.10 Officiating	53
10.11 Coaching	54
APPENDIX 1 PRINCIPLES FOR COMPETITION	56
APPENDIX 2 DEVELOPMENTAL CONSTRUCTS	62
APPENDIX 3 DEVELOPMENTAL RECOMMENDATIONS	81
APPENDIX 4 IDEAS FOR ACTIVE FOR LIFE	140
APPENDIX 5 TABLES OF SUPPORTING EVIDENCE	143



1.1 GLOSSARY OF SPEED SKATING TERMS

These definitions are for the most part operational definitions. Early in the Review Team's discussion it became evident that team members agreed on a concept but used different words to describe the idea. For clarity and to improve communication these terms were defined for this report. In other instances commonly used terms were too general to describe the concept or idea that the team wished to communicate. In these instances adjectives were added and a specific description of the term coined.

Because these words are often used differently by individuals they are grouped to help the reader consider the meaning used in this report.

Common Speed Skating Terms

Events are planned and organized occasion (e.g. races and/or skill tests and/or fun activities)

Competitions are events in which a number of races are contested.

Races are contests between two or more people seeking to do the same thing, or to finish first.

Skill Test is an opportunity to demonstrate how much you know or how well you are able to do a skill.

FUNDamentals competition/events are events that focus on skill development but will include some traditional racing.

Ability Meets are competitions and events closer to traditional racing but grouped by skill/performance rather than age or gender.

Age Class Meets are traditional age class championships grouped by chronological age and gender.

Open Meets are higher level competitions such as national championships, national team trials, international events, world championships and multi-sport events (ei, Olympic and Canada Games).

Competition

Competition is a '... sanctioned, scheduled competition which contributes to standings or ranking or qualification and / or leads to a championship. This would not include exhibition games or competitions which do not affect ranking, standings or qualifying.' (Competition is a Good Servant but a Poor Master)¹

Meaningful Competition implies a chance to succeed and even win but to be successful requires some uncertainty and excitement. Races where skaters are so spread out that they are essentially "racing on their own" do not have the necessary uncertainty and are neither fun nor worthwhile, providing limited challenge and minimal learning. Excitement is based on meeting and challenging uncertainty. (*Rowing Canada's LTAD Competition Review* p6)²

Performance Competition is allied to summative evaluation where the outcome is the focus. This would include all competitions that lead to selection to a team, funding, ranking and major championships. These competitions would be important points, perhaps even the goal, in an athlete's periodization plan.

Developmental Competitions are allied with formative evaluation which focuses on the process, physical development and learning. These could be the competition objectives when an athlete participates in a competition but the results are used to analyse the skater's development. Specific objectives could be to test fitness, execute skill in competition, try out racing strategies etc.

Simulation Competition would be done in controlled situations within training and practice or in situations such as club handicap racing or informal Saturday morning racing. These would not be sanctioned in any way and for the most part managed by coaches. These would also focus on the process of developing and therefore be formative.

¹ Way, R and Balyi, I. *Competition is a Good Servant but a Poor Master*, Canadian Sport Centers)

² *Rowing Canada's LTAD Competition Review*, Rowing Canada.



Critical Date(s) for SSC Ages is the date at which the athletes age for a competition is formally defined. As of June 2009 Speed Skating Canada uses July 1st as the critical age. For age class competitions the relative age of the skater could provide skaters with an early birthday (e.g. July) with an advantage over younger skaters in the age class (e.g. June birthday). For skaters born as little as one day apart the older skater would always have an almost full year age advantage (see also critical age in Glossary of Growth and Development Terms).

Evaluation

Summative evaluation is a method of judging the worth of a program at the end of the program activities. The focus is on the outcome. (<http://www.sjsu.edu/depts/it/itcdpdf/evaluation.pdf>)

Formative evaluation is a method of judging the worth of a program while the program activities are forming or happening. Formative evaluation focuses on the process. (<http://www.sjsu.edu/depts/it/itcdpdf/evaluation.pdf>)

ISU refers to the International Skating Union which governs both Long and Short Track Speed Skating. (*Find Your Edge*, p3)

Klap Skate refers to the blade and mechanism, which is attached to the long track boot. This equipment gets its name "Klap Skate" from the sound it makes when the blade opens and closes on the boot as the skater pushes. This opening action of the blade on a LT skater is because it is only secured by a single pivot point on the boot. This differs from ST as the blade is secured at both the front and back of the boot. (*Find Your Edge*, p3)

Racing Styles

Long Track (LT) Speed Skating is done on an outdoor oval and there are several events including:

Mass Start: 4 to 8 skaters race distances between 50 and 3000m with Short Track Racing Rules. Mass start is primarily a developmental event raced by skaters 16 and under. Mass start racing is a race in a pack and usually done with younger skaters. Time is recorded, but it is head to head competition with the winner being the first skater across the line. Distances are determined by Canadian age classes. (*Parents Guide to Speed Skating*, p11 and *Find Your Edge*, p3)

Olympic style racing, which is raced in pairs against the clock. Both skaters compete using both inner and outer lanes on the 400m Oval. Elite distances include (*Find Your Edge*, p3)

Team Pursuit is the newest event where skaters compete in teams of 3 with all laps skated on the inner track of the Oval. Men complete 8 laps and women perform 6 laps with the clock determining the winner. (*Find Your Edge*, p3)

Marathon, which is a pack style skating over very long distances. This can be done on Ovals, as well as on outdoor lakes and canals. (*Find Your Edge*, p3)

Short Track (ST) Speed Skating is done in an arena and is raced mass start. Several skaters will race together on a 111m oval where the first person across the line wins. Short Track events at the elite level include individual pursuit races, individual races and relays. (*Find Your Edge*, p4)

ISU World ST Team Competition: One example is the ISU World Team Championship where a fixed number of skaters skate for one team over a variety of distances. They are ranked by their coach into specific events where they race once for points. The event finishes with a relay competition. The team with the most points wins the competition. There are no individual awards. (synopsis of ISU Rule 283)

1.2 GLOSSARY OF GROWTH AND DEVELOPMENT TERMS

ABCs of Athleticism

Agility: The ability of a participant to rapidly and voluntarily displace their body in all directions or to maintain their body in a stable position while displacing their base of support. (*Parents Guide to Speed Skating*, p7)¹

Balance: The capacity of a participant to maintain their centre of gravity in a stable position, or travelling in a continuous line with assistance of small muscle contractions. (*Parents Guide to Speed Skating*, p7)

Coordination: The capacity of a participant to voluntarily perform rapid movements which are synchronized or de-synchronized. (*Parents Guide to Speed Skating*, p7)

Speed: The time required to cover a specific distance. In reference to speed as a fundamental skill we are referring to both the frequency of movement and reaction time. (*Parents Guide to Speed Skating*, p7)

Suppleness: (Flexibility) The optimal window of trainability for suppleness in both girls and boys occurs between age of 6 and 10 years old. Special attention should be paid to suppleness during PHV. (*Parents Guide to Speed Skating*, p23)

Adaptation refers to a response to a stimulus or a series of stimuli that induces functional and/or morphological changes in the organism. Naturally, the level or degree of adaptation is dependent upon the genetical endowment of an individual. However, the general trends or patterns of adaptation are identified by physiological research, and guidelines are clearly delineated of the various adaptation processes, such as adaptation to muscular endurance or maximum strength. (*Canadian Sport for Life*, p4)²

Adolescence is a difficult period to define in terms of the time of its onset and termination. During this period, most bodily systems become adult both structurally and functionally. Structurally, adolescence begins with an acceleration in the rate of growth in stature, which marks the onset of the adolescent growth spurt. The rate of statural growth reaches a peak, begins a slower or decelerative phase, and finally terminates with the attainment of adult stature. Functionally, adolescence is usually viewed in terms of sexual maturation, which begins with changes in the neuroendocrine system prior to overt physical changes and terminates with the attainment of mature reproductive function. (*Canadian Sport for Life*, p4)

Age

Chronological age refers to the number of years and days elapsed since birth. Children of the same chronological age can differ by several years in their level of biological maturation. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)³

Developmental age refers to the degree of physical, mental, cognitive, and emotional maturity. Physical developmental age can be determined by skeletal maturity or bone age after which mental, cognitive, and emotional maturity is incorporated. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)

General training age refers to the number of years in training, sampling different sports. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)

Relative age refers to differences in age among children born in the same calendar year. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)

Skeletal age refers to the maturity of the skeleton determined by the degree of ossification of the bone structure. It is a measure of age that takes into consideration how far given bones have progressed toward maturity, not in size, but with respect to shape and position to one another. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)

Sport-specific training age refers to the number of years since an athlete decided to specialize in one particular sport. (*Role of Monitoring Growth in Long-Term Athlete Development*, p3)

1 *Parents Guide to Speed Skating: A Speed Skating Canada LTAD Initiative*, Speed Skating Canada.

2 *Canadian Sport for Life Long Term Athlete Development Resource Paper*, Canadian Sport Centers.

3 Bayli, I & Way, R. *The Role of Monitoring Growth in Long Term Athlete Development, A Supplement to: Canadian Sport for Life* (2009), Canadian Sport Centers.



Childhood ordinarily spans the end of infancy — the first birthday — to the start of adolescence and is characterized by relatively steady progress in growth and maturation and rapid progress in neuromuscular or motor development. It is often divided into early childhood, which includes preschool children aged 1 to 5 years, and late childhood, which includes elementary school-age children, aged 6 through to the onset of adolescence. (*Canadian Sport for Life*, p4)

Critical periods of development refers to a point in the development of a specific behaviour when experience or training has an optimal effect on development. The same experience, introduced at an earlier or later time, has no effect on or retards later skill acquisition. (*Canadian Sport for Life*, p4)

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.” (*Canadian Sport for Life*, p4)

Growth refers to observable, step-by-step, measurable changes in body size such as height, weight, and percentage of body fat. (*Canadian Sport for Life*, p5)

Kaisen or the concept of continuous improvement or Kaizen underlies the progression of races. Kaisen or continuous improvement is drawn from the respected Japanese industrial philosophy. (*Canadian Sport for Life*, p34)

Maturation refers to “qualitative system changes, both structural and functional in nature, in the organism’s progress toward maturity; for example, the change of cartilage to bone in the skeleton. (*Canadian Sport for Life*, p5)

Peak height velocity (PHV) is the maximum rate of growth in stature during growth spurt. The age of maximum velocity of growth is called the age at PHV. (*Canadian Sport for Life*, p4-5)

Peak weight velocity (PWV) is the maximum rate of increase in weight during growth spurt. The age of maximum increase in weight is called the age at PWV. (*Canadian Sport for Life*, p5)

Periodization sequences the training components into weeks, days and sessions. Periodization is situation specific depending on the priorities and time available to bring about the required training and competition improvement. Periodization organizes and manipulates the aspects of modality, volume, intensity and frequency of training through long term (multi-year and short term (annual) training, competition, and recovery programs to achieve peak performances when required. A critical aspect of periodization is planning a competition calendar.

Physical Literacy is the development of fundamental movements, skills and fundamental sport skills that permit a child to move confidently and with control in a wide range of physical activity, rhythmic (dance) and sport situations. Physical literacy also includes the ability to ‘read’ what is going on around them in an activity setting and react appropriately to those events. (*Developing Physical Literacy*, p5)

Puberty refers to the point at which an individual is sexually mature and able to reproduce. (*Canadian Sport for Life*, p5)

Readiness refers to the child’s level of growth, maturity, and development that enables him/her to perform tasks and meet demands through training and competition. Readiness and critical periods of trainability during growth and development of young athletes are also referred to as the correct time for the programming of certain stimuli to achieve optimum adaptation with regard to motor skills, muscular and/or aerobic power. (*Canadian Sport for Life*, p5)

Self-Esteem is all about how much people value themselves, the pride they feel in themselves, and how worthwhile they feel. Self-esteem is important because feeling good about yourself can affect how you act. A person who has high self-esteem will make friends more easily, is more in control of his or her behaviour, and will enjoy life more. Body image shows how a person feels about his or her appearance. For many people, especially people in their early teens, body image can be linked to self-esteem. That's because as kids develop into teens, they care more about how others see them. (http://kidshealth.org/teen/your_mind/body_image/body_image.html)

Skill The ABCs of athleticism and the development of FUNdamental movement skills play a significant role in the development of sport skills prior to the onset of PHV. The window of optimal trainability for sport specific skill training for boys takes place between the ages of 9 and 12 and between the ages of 8 and 11 for girls. It should be noted that participants for whom the onset of PHV occurs later will benefit from a prolonged window of trainability for sport specific skills. (*Parents Guide to Speed Skating*, p23)

Fundamentals are locomotion and body skills, sending skills and receiving skills. (*Developing Physical Literacy*¹, p9-13)

Movement Skills are basic locomotion and body skills, sending skills and receiving skills. (*Developing Physical Literacy*, p9-13)

Sport Skills are the fundamental movement skills as they apply to a specific sport and other skills such as making good decisions in sport situations. (*Developing Physical Literacy*, p9-13)

Stamina (Endurance) The optimal window of trainability occurs at the onset of PHV. Aerobic capacity training is recommended before skaters reach PHV. Prior to this period stamina is generally developed through games and skill development activities and not through targeted training sessions. Aerobic power should be introduced progressively as the growth rate decelerates. (*Parents Guide to Speed Skating*, p23)

Strength The optimal window of trainability for girls is immediately after PHV or at the onset of menarche (menstruation), while for boys it is 12 to 18 months after PHV. (*Parents Guide to Speed Skating*, p23)

Speed For boys, the first speed training window occurs between the ages of 7 and 9 years and the second window occurs between the ages of 13 to 16. For girls, the first speed training window occurs between the ages of 6 and 8 years and the second window occurs between the ages of 11 and 13 years. During the first window of trainability the focus should be on speed activities of 5 seconds or less, primarily focused on reaction time and improving synchronisation in rapid movements. The second window of trainability seeks to develop a more sport specific speed quality with intervals lasting up to 20 seconds. (*Parents Guide to Speed Skating*, p23)

Trainability refers to the genetic endowment of athletes as they respond individually to specific stimuli and adapt to it accordingly. (*Canadian Sport for Life*, p5)

Windows of Trainability refers to a point in the development of a specific behavior when experience or training has an optimal effect on development. The same experience, introduced at an earlier or later time, has no effect on or retards later skill acquisition. (*Find Your Edge*, p12)

Window of Opportunity for Skill refers to a point in the development when experience has the optimal effect on acquiring motor skills.

¹ *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Sport Centers.



2. INTRODUCTION

2.1 Why Review SSC Competition Structure?

Speed Skating Canada (SSC) leads one of the most successful elite speed skating programs in the world and speed skating is one of Canada's elite sports. Why is it necessary to review SSC's competition structure?

In sport, if you are standing still, you soon fall behind. The status quo is not an option.

In sport, if you are standing still, you soon fall behind. The status quo is not an option.

There is a new movement in Canadian Sport that is challenging every sport to review their programs. This movement uses the Canadian Sport for Life Long Term / Athlete Development (LTAD) Model¹ as a bench mark for programming.

2.2 What is the Long Term Participant and Athlete Development Model (LTPAD) Model?

SSC was an early Canadian sport development leader by producing *Find Your Edge*², a document developed to "provide an overview or 'big picture' of the LTPAD plan and framework to guide SSC and its members' programs³." *Find Your Edge* and the LTPAD Model are Speed Skating Canada's commitment that every participant has the opportunity to reach his/her full potential in speed skating.

The LTPAD Model defines the best learning and participation environment, at each stage of development, by taking into account participant physical, mental, cognitive and emotional factors. "The LTPAD model:

- Is based on the sport participant's developmental age and not their chronological age and recognizes that children are not miniature adults and do not all develop at the same speed.
- Acknowledges everyone progresses through stages of development and training objectives at their own rhythm.
- Is athlete centered, coach driven and supported by administrators, officials and financial partners.
- Is based on the Canadian Sport for Life model, a multi-sport model developed for all Canadians in all sports,
- Is intended to assist athletes, parents, coaches, officials and sport administrators to make informed decisions about athlete development.
- Allows for everyone to participate to the full extent of their abilities.
- Recognizes competitions must be adapted to the stage of development of the participants.⁴

The model considers participants across developmental stages. The stages are summarized by the objectives for each (see Table 1). Table 1 includes objectives identified in two documents: Speed Skating Canada's *Find Your Edge* and the Canadian Sport Centre's *Canadian Sport for Life*.

1 [Canadian Sport for Life Long Term Athlete Development Resource Paper](http://www.canadiansportforlife.ca). <www.canadiansportforlife.ca>

2 Speed Skating Canada's *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan*.

3 Page ? Speed Skating Canada's *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan*

4 <http://www.speedskating.ca/LTAD.cfm>

Table 1
Stage of Development Objectives¹

<p>Active Start² (0 to 6yrs)</p> <ul style="list-style-type: none"> Learn fundamental movements and link them together into play (<i>Sport for Life</i>)
<p>FUNdamentals (males 6 to 9 yrs and females 6 to 8 years)</p> <ul style="list-style-type: none"> Basic movement skills (<i>Find Your Edge</i>) Learn all fundamental movement skills and build overall motor skills (<i>Sport for Life</i>)
<p>Learning to Train (Males 9 yrs - 12 yrs and females 8 yrs - 11 yrs)</p> <ul style="list-style-type: none"> Fundamental sports skills including speed skating skills (<i>Find Your Edge</i>) Learn over all sport skills (<i>Sport for Life</i>)
<p>Training to Train (males 12 yrs - 16 yrs and females 11 yrs - 15 yrs (age ranges are PHV dependent))</p> <ul style="list-style-type: none"> Building the engine and sport specific skills (<i>Find Your Edge</i>) Build and aerobic base, develop speed and strength towards the end of the stage and further develop and consolidate sport specific skills (<i>Sport for Life</i>)
<p>Learning to Compete³ (males 16 yrs - 18 yrs and females 15 yrs - 17 yrs)</p> <ul style="list-style-type: none"> Optimizing the engine, speed skating specific skills and fitness (<i>Find Your Edge</i>)
<p>Training to Compete (males 18 yrs - 21 yrs and females 17 yrs - 21 yrs)</p> <ul style="list-style-type: none"> Further optimizing the engine, speed skating specific skills and fitness (<i>Find Your Edge</i>) Optimizing the engine and learn to compete (<i>Sport for Life</i>)
<p>Learning to Win (ST males 21 yrs - 23 yrs & ST females 21 - 23) (LT males 21 - 25 & LT females 21 - 25)</p> <ul style="list-style-type: none"> Maximizing the engine and speed skating specific skills and fitness (<i>Find Your Edge</i>)
<p>Training to Win (ST males 23+ yrs and ST females 23+ yrs) (LT males 25+ yrs and females 25+ yrs))</p> <ul style="list-style-type: none"> Further maximizing the engine, speed skating specific skills and fitness (<i>Find Your Edge</i>) Podium performances (<i>Sport for Life</i>)
<p>Active for Life⁴ (This may occur at any age)</p> <ul style="list-style-type: none"> Smooth transition from an athlete's competitive career to lifelong physical activity and participation in sport. (<i>Sport for Life</i>)

¹ From Canadian Sport for Life Long-Term Athlete Development Resource Paper. <www.canadiansportforlife.ca>and Speed Skating Canada's Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan.

² The Sport for Life document has an Active Start stage and an Active for Life stage, which are not in the SSC Find Your Edge document.

³ It is noted that the SSC Find Your Edge document has a 'Learning to Compete' stage and a 'Learning to Win' stage which is not in the Sport for Life documents.

⁴ Note the review team felt that while this stage was not included in Find Your Edge this stage is a critical part of speed skating. The team identified different roles which include volunteering, coaching, officiating recreational and health skating and competitive racing.



2.3 How does the Competition and Event Review relate to the Speed Skating Canada Vision?

In the SSC 2007-08 Strategic Plan three pillars of the vision were identified:

“Podium Results: Canadian speed skaters are consistent medalists at the Olympic Games and world championships. The Canadian flag flies at many medal presentations. Canadian skaters are recognized frequently by the speed skating community and the Canadian media and public.”

“Growth: There is growth of speed skating throughout the country at all levels and in all categories of membership and the speed skating community continues to expand. Skaters continue to be involved after their speed skating careers.”

“Holistic Athlete Development: Physical, psychological, social, cultural, emotional, educational and career development needs are integral to the skill development, training, coaching, competitions and training environments. This holistic approach enables to skaters to reach their personal potential. Speed skaters become goal-oriented and positive, responsible citizens who contribute to sport and the wider community.”¹

The Review and the LTPAD model:

- Is a manifestation of the third vision statement - holistic athlete development. To fulfill the holistic development recommendations SSC must provide developmentally appropriate program to be consistent with the LTPAD model.
- Is directly related to the second vision statement, as a competition/events system based on the LTPAD provides optimal programming and therefore facilitates athlete growth. The Review also has carefully considered the Active for Life stage which addresses the post competition participation.
- Recognizes that developmentally appropriate programming will allow participants to acquire the necessary attributes and skill sets to be elite performers and therefore influence podium results.

The Competition and Event Review and the timely focus on the LTPAD model can only help SSC achieve the stated vision...

The Competition and Event Review and the timely focus on the LTPAD model can only help SSC achieve the stated vision and in particular help SSC develop plans to achieve the Long-Term Strategic Imperatives and Strategic Goals in the SSC 2007-08 Strategic Plan: *“Design and implement an integrated domestic competition structure that is consistent with the development and performance needs through all levels of skaters.”*²

SSC must foster **developmentally appropriate programs** to realize the organization’s strategic plan vision. Developmentally appropriate programs will facilitate holistic development of all participants, are the most appropriate strategy to develop elite athletes and by addressing all the domains will help the sport grow.

2.4 What is Speed Skating?

Speed skating is simply **racing on skates**. Both in Canada and internationally, skaters race on sophisticated equipment, use adult-sized tracks and, based on tradition, always turn left. This model defines competition, but:

- Developmentally, is this most appropriate for Canadian children?
- What additional “racing on skates” opportunities might allow participants to experience the thrill of speed on ice while gaining developmental value?
- What role can speed skating play in the holistic development of all participants who choose to participate in Speed Skating Canada’s programs?

¹ Speed Skating Canada Strategic Plan (Board 2007-08)

² Speed Skating Canada Strategic Plan (Board 2007-08)

2.5 Competition and Event Review: Challenge and Opportunity?

- By using the LTPAD model to reconsider the SSC basic competitive structure, there is an **opportunity** to rationally develop the most appropriate programs for all of SSC participants.
- Change is always a **challenge**. This is especially true if an organization is internationally successful. However, how successful are we? Speed skating still has a relatively small number of skaters and the sport faces problems of both skater and leadership retention.
- The people who are involved have made major efforts and commitments to speed skating as it is now. They believe in SSC and the current programs.
- If it is so successful why change? A better question may be: **Could SSC offer even better, more successful programs?**

The **Competition and Events System Review** takes a very close look at speed skating, physical literacy and growth and development. The review's intent is to make recommendations to ensure racing on skates is developmentally appropriate and provides the best experience for every participant.

2.6 What is a Meaningful Competition¹?

- Meaningful implies a chance to succeed and even win but success requires some uncertainty and excitement.
- Races where skaters are so spread out they are essentially "racing on their own" do not have the necessary uncertainty and are neither fun nor worthwhile, providing limited challenge and minimal learning.
- Excitement is based on meeting and challenging uncertainty.
- To be meaningful within the LTPAD model, competition also has to have clear goals linked to participant/athlete development.
- The event/competition system should be structured to allow all athletes to compete in meaningful races that support their physical, tactical, technical, mental and social development.
- The appropriate level and type of competition as well as the progression from one level to another is critical to each athlete's long-term development.
- The concept of continuous improvement or Kaizen² underlies the progression of races. Kaizen or continuous improvement is drawn from the respected Japanese industrial philosophy.

2.7 Do we define SSC by competition or do we use competition to achieve SSC core purpose, vision, values and strategic objectives?

- It is natural that coaches, parents and athletes want therefore to win; **competition often drives training, dictating the type, volume, intensity and frequency of training.**
- In an individual sport winning and personal best times are the most obvious and often thought of as the benchmarks for success.
- However if we are to serve the long-term interests of all participants, each stage of development objectives must be considered in defining events/competitions and the establishment of benchmarks of success.
- At the early developmental stages for long-term development, the primary objectives of developing physical literacy, basic skills and understanding of the sport are more important than times skated and winning.
- If competition is to be a **good servant**³ rather than a **poor master**, the nature of the speed skating events and competition activities should reflect the appropriate development stage objectives, including reinforcement of social, psychological and physical development objectives.
- Speed Skating must provide events/competitions appropriate for participants/athletes at each stage of development from 'Fundamentals' through the 'Training to Win' stages and meaningful competition for participants of all ages in the 'Active for Life' stage as part of the Canadian Sport for Life model.
- Participation must be relevant and meaningful to each individual.

¹ The term meaningful competition is taken from Rowing Canada's *LTPAD Competition Review* p6

² From Canadian Sport for Life *Long Term Athlete Development Resource Paper* p 34

³ Way Richard and Balyi, Istvan "Competition is a Good Servant but a Poor Master" Canadian Sport for Life <<http://www.canadiansportforlife.ca/default.aspx?PageID=1076&LangID=en>>



3. BACKGROUND

This review is driven by the principle that the SSC's program strength will be based on compatibility between SSC programs and the LTPAD model and related constructs.

LTPAD as defined by *Canadian Sport for Life*¹ is the foundation for optimal programming for the development of Canadians in sport. Speed Skating Canada (SSC) has endorsed *Find Your Edge*², a sport specific Long-Term Athlete Development Model as its fundamental guide to athlete and participant development. Implementation of the Model's principles is crucial for SSC to achieve the organization's stated vision and strategic objectives.

SSC established a Long-Term Athlete Development Model Implementation Working Group. The Working Group decided a critical step to move forward was to examine SSC's competition and event system, to ensure SSC's programs are aligned with those principles. To conduct the Review, the Working Group established a Competition and Event System Review Team at the 2008 SSC AGM.

Current SSC programs have a strong basis in tradition and history but that tradition and history should not limit our thinking about how to design a system that works for all participants.

The principles should be the foundation for all program decisions.

Current SSC programs have a strong basis in tradition and history but that tradition and history should not limit our thinking about how to design a system that works for all participants.

The **Terms of Reference, Competition and Events System Review** were developed and approved by the Team and the Working Group (see Terms of Reference section below). The **Competition Review Principles** were developed and endorsed by the Board of Directors (see Competition Review Principles section below). The principles are guidelines for speed skating to make the best possible decisions. The principles should be the foundation for all program decisions.

¹ *Canadian Sport for Life Long Term Athlete Development Resource Paper*

² *Find Your Edge Speed Skating Canada's Long Term Athlete Development Model*, Speed Skating Canada

4. TERMS OF REFERENCE¹

The Competition and Events Review Team's overall mandate is to identify programs and structures that will facilitate entrenchment of the stated values of the organization and the SSC LTPAD model and make recommendations as they deem appropriate.

This Competition and Events System Review, as important as it may be, is but one step in the process of entrenching the Model as a guide to making decisions. While the Review is to be focused on the competition system, the LTPAD Model has implications for the work of the Club and Membership, Officials, Competitions and Coaching Development committees. These standing committees need to be actively engaged in LTPAD initiatives. These standing committees need to consider their educational programs with respect to the stages of development defined in *Find Your Edge*. These considerations can and should be made independent of the Competition Review Team's work.

In making recommendations, the Competition and Events System Review Team was asked to consider:

- What an ideal competition system might look like.
- Purposes of competitions, including categories, progressions and series of competitions.
- Physical, social and psychological considerations for competition at each stage of the LTPAD model.
- Constraints imposed by factors beyond SSC control (such as climate, geography, social trends, academic calendar, travel costs and the ISU² calendar) in implementing the LTPAD Model.
- Capacity of SSC Branches and clubs to deliver and participate in programs.

Specifically:

The Review Team was requested to:

Evaluate the current system of competitions to identify if and where the competitive structure is incongruent with Speed Skating Canada's stated values and *Find Your Edge* – Speed Skating Canada's Long Term Athlete Development Plan.

- Identify inconsistencies between the competition structure, SSC values and LTPAD Model and make recommendations to address these identified inconsistencies.
- Make other recommendations which it may deem appropriate for consideration/discussion by the LTPAD Implementation Working Groups.
- Gather normative data and other qualitative information to assist in making recommendations that are based on research as opposed to intuition.
- Make recommendations regarding the role of SSC, Branches and Clubs in supporting the different stages defined by the Model.
- Make recommendations regarding: scheduling of events, competition/event duration, age categories, and types of events within the competition structure for National, Provincial, Regional and local events.
- Make recommendations regarding provincial/territorial/regional games and the Canada Games within the athlete development pathway.
- Make recommendation regarding alternate competitions and events compatible with the LTPAD model.

¹ Quoted from Speed Skating Canada's web site <<http://www.speedskating.ca/comp-eventreviewtor.cfm>>

² ISU International Skating Union



5. LOGIC STRUCTURE

To do the review properly any and all recommendations had to be directly linked to the material in the LTPAD model and relate to speed skating. The **Developmental Constructs** were written to organize the information in developmental domains and link these to speed skating. If speed skating is to fully consider the LTPAD model then two approaches had to be considered. The first was to look at critical program aspects on a developmental continuum. **Developmental Recommendations** address longitudinal programming development within a domain. It does not facilitate all the program aspects at each developmental stage. **Program Recommendations** integrates all the material into a stage by stage series of recommendations across developmental domains and speed skating.

Program Recommendations integrates all the material into a stage by stage series of recommendations across developmental domains and speed skating.

The Guiding Principles, Developmental Constructs and Developmental Recommendations provide a framework for all future review and consideration of SSC programs. The Program Recommendations are compatible with these and, if one accepts the other documents at face value, can be the basis for current change. Alternative recommendations should be validated against these three primary documents.

The **Guiding Principles for Competitions and Events** will be an objective foundation for event/competition recommendations.

The **Developmental Constructs** are like pillars providing the foundational rationale for a holistic program at each stage in specific developmental domains. The Developmental Constructs were reviewed by individuals with both an academic and a sport background for their validity. Assuming they are valid they should stand until growth and development research provides better evidence.

These constructs were used to create a set of **Developmental Recommendations** for each stage. The Developmental Recommendations were reviewed by the Review Team to verify if they were a logical extension of the September, 2008 Review Team meeting and the Developmental Recommendations. The Developmental Recommendations become a second set of pillars for each developmental stage Program Recommendations. The Developmental Recommendations should also stand the test of time until the growth and development research provides better evidence.

The Review's title was modified to add the word Participant to better reflect the terms of reference and the scope of SSC programs. The model was renamed Long-Term Participant and Athlete Development Model (LTPAD).

To develop **Program Recommendations** the Team was divided into two squads working in concert with one another, one focusing on Long Track program issues the other on Short Track program issues. The objectives for each stage provided the basis for a functional analysis of what a program should achieve. Each team reviewed the material, stage by stage, and prepared a program matrix for each developmental stage for discussion on regular conference calls.

The Review Team met the challenge of using the principles and developmental constructs to develop a program package best suited for participants and to develop speed skating as an important part of Canadian culture. The **Program Recommendation Matrices** developed by the short track group and the long track group were then cross referenced with the Developmental Recommendations as a double check on the final report. The Program Recommendation Matrices are meant to be an ideal developmentally appropriate program model for short-term consideration. Over time changes will be made, tested and program ideas reconsidered.

6. GOVERNANCE

The Competition Review Team reported regularly to the LTPAD Working Group concerning progress of the work it was doing.

The Working Group liaised and consulted with SSC Standing Committees and Branches when necessary with respect to the Review's progress.

In April the SSC Standing Committees were given a preview of the report in joint meetings in Ottawa.

The preview had three purposes:

- to help the committee members understand the review process and logic.
- to give the committee members a preview of the recommendations.
- to help the committee members identify and develop work plans to prepare the appropriate program changes.

The Working Group, following receipt of the Competition Review Team's Final Report, presented it to the SSC Board of Directors.

The Review will be presented to the Annual General Meeting, June 2009.



7. GUIDING PRINCIPLES FOR COMPETITION AND EVENTS¹

Why Guiding Principles?

A set of guiding principles based on the Sport for Life's LTPAD model and reflecting SSC's values will be an objective foundation for event/competition recommendations. These recommendations and their rationale will be the starting point for decisions by SSC Board, Standing Committees, Branches and members.

To effectively review the existing event and competition system and propose new opportunities it is essential to have a clear vision of how events/competitions service the mission, vision and values of Speed Skating Canada as well as the long-term athlete development model. Programs must be clearly and coherently linked (training, competitions/events, coaching, officiating and membership development) through principles that are the basis of all SSC activity. The principles apply to all levels and ages of participants but for the younger participants the phrase "**children are not miniature adults**" must be kept in mind for all of the principles.

These guiding principles stipulate that events/competitions should:

1. Reflect Speed Skating Canada's values and True Sport's principles.
2. Be a full partner in the Canadian sport delivery/youth development system.
3. Adjust to change in society.
4. Provide a pathway towards personal and sporting excellence for all participants.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.
7. Utilize the basic characteristics identified in the LTPAD and other literature to define the event/competition **objectives** for each stage of development.
8. Utilize the basic characteristics identified in the LTPAD and other literature in the selection of event/competition **activities and skills** for each stage of development.
9. Define and celebrate success in relation to the goals and objectives of the stage of all participants.

The rationale for these principles is presented in Appendix 1.

¹ Taken directly from SSC web site <<http://www.speedskating.ca/comp-eventreview.cfm>>

8. DEVELOPMENTAL CONSTRUCTS

The material included in the *Sport for Life* and *Find Your Edge* documents covers a broad spectrum of physical, physiological, psychological and social domains. Unfortunately these developmental continuums are difficult to interpret because they are presented in tables that blend many developmental domains together. The documents also do not address some social issues that can be considered.

The material is based on theory: “set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena”¹. However, these statements are constructs: “an abstract or general idea inferred or derived from specific instances”². “A construct fits together, frames, builds or delineates”³.

The strength of the LTPAD process is to use available developmental constructs or information to guide decision making. However the concepts or constructs are complex and difficult to follow as presented in the *Find Your Edge* and *Sport for Life* documents in the stage by stage tabular form. The documents also do not address some social issues that can and must be considered when taking a holistic approach to participant development.

The strength of the LTPAD process is to use available developmental constructs or information to guide decision making.

To facilitate understanding of this information the material was parsed into specific topics. Where the data in the documents was incomplete further research was completed. This analysis is summarized in Appendix 2 and is supported by a series of Tables included in Appendix 5.

The constructs are listed below to assist the reader to understand these through the continuum of developmental stages. These must be considered as vertical pillars of development that support the recommendations for each stage. Like a building, the structure is only as sound as the foundation (principles) and each floor can only be as sound as the structural pillars (concepts or constructs) that support that floor.

This section should hold true for a considerable period of time and only change as the basic knowledge about development evolves. The developmental constructs are summarized in Table 2. The last section is based on social issues which are summarized in Table 3.

¹ www.thefreedictionary.com

² www.thefreedictionary.com

³ *The Concise Oxford Dictionary of Current English fifth edition*



Table 2

Summary of the Developmental Constructs

Physical Anatomical Developmental Constructs

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
- Puberty is a period of rapid growth during which the length of limbs may grow rapidly, therefore severely challenging skills development.
- Puberty is a time of maximal individual differences within a chronological age.
- During puberty there is a need to minimize the chronological age differences between individuals.
- Post puberty the majority of the growth is complete.
- Post puberty stages of development require gender specific races/competitions.
- 'FUNdamentals', 'Learning to Train' and 'Training to Train' stages of development should include a significant amount of clockwise racing in addition to the traditional clockwise direction.

Physiological Developmental Construct

- Windows of trainability should be a major determinant of SSC competition and event activities for each developmental stage.

Neurological Developmental Constructs

- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- The neurological system is almost fully developed when the child starts puberty.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.
- Precision in skills can be achieved due to the relatively advanced neurological development.

Cognitive Developmental Constructs

- Cognitively, participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Children's ability to focus on dynamic issues is limited until they reach late puberty.
- Competition requires ability to analyse performance. Until early puberty, competitions should be managed so children are able to analyse their success and failure.
- The transition from 'Learn to Train' to 'Train to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not.
- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.

Self Concept and Self Esteem Developmental Constructs

- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Children start to self-actualize with self-expression being important during late adolescence.
- Body image, self-esteem and clothing are interlinked.

Social Affiliation and Play Stage Developmental Constructs

- For preschool children, primary affiliation is with parents and this gradually changes to significant others and peers by the teenage years.
- At 10 years of age children reach a stage where team sports are important.
- At 12 years of age children start to have individualized leisure preferences.
- Sport needs to offer a strong social environment during all stages of development.
- The social environment is especially important during the early teenage years.
- By early adulthood (15 years and older) they have the capacity for self-actualization.
- By early adulthood (15 years and older), there is also a need to be self-directed and independent.
- By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balance with sport.

Role of Competition Developmental Constructs

- Competition can be categorized into three types: “Performance Competitions”, “Developmental Competitions” and “Simulation Competitions” based on the objectives for the competition and how the competition results are used.
- There must clear enunciated objectives for each competition related to the relevant stage of development objectives.
- The way competition results are used must be considered in an athlete’s long-term development plan

Periodization and Competition Developmental Constructs

- Physical literacy including physical development take precedence over competition, periodization and the competition calendar for the early stages of development (‘Active Start’ to ‘Learning to Train’).
- There will be a transfer from a priority of developing physical capacities to competition for the ‘Training to Train’ and ‘Learning to Compete’ stages of development.
- The ability to compete becomes the focus for periodization and the competition calendar for the later stages (‘Training to Compete’ and ‘Training to Win’).
- Long and Short Track should be integrated in both training and competition until the ‘Training to Train’ stage of development.
- Periodization and competition calendar must be taken into consideration in the planning of feature events and competitions.
- There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the ‘Training to Compete’ and ‘Learning to Compete’ stages of development.
- ‘Competition Training’ will be a priority and periodization a critical part of the planning process for the ‘Learning to Win’ and the ‘Training to Win’ stages of development.
- The competition calendar must consider periodization for each stage of development.
- The competition calendar must consider life style and personal development factors such as education and examination schedules.
- Selection policies and championships must be compatible with each stage of development.



Relative, Biological and Chronological Age Developmental Constructs

- Biological or maturational age is an important factor to consider in grouping athletes particularly during puberty but is not practical for establishing age categories.
- Biological or maturational age is observable and easily measured, however, it does not necessarily reflect maturity in other domains such as social and psychological maturation, therefore decisions should include biological age but must consider the other developmental domains.
- Minimizing the effect relative age will improve the fairness of chronological age categories. The objective is to offset the relative age effect for individuals with birthdays close to the arbitrary age category date.
- Another option is a definition of chronological age being the age in years at the first day of an event/competition. This would mean almost random changes from week to week and a championship could be defined by the date of the event/competition.
- By having a single critical date of July 1st the ISU and SSC do not accommodate the concept of relative age. This means an athlete born in late June will always be in an age class with an athlete almost a year older but born in early July.

Gender Differences and Age Developmental Constructs

- Boys and girls should participate together in the same activities and races for the 'Active Start', 'FUNdamentals' and 'Learning to Train' stages.
- Competitions and races should be in gender specific categories for 'Learning to Train', 'Learning to Compete', 'Training to Compete', 'Learning to Win', 'Training to Win' and 'Active for Life' stages of development.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local levels for all stages of development.

ISU Ages and Distances Developmental Constructs

- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for 'Learning to Compete' stages of development and older.
- SSC distances should be consistent with the relevant ISU distances and competitions for 'Training to Compete' stages of development and older.

Facilities and Equipment Developmental Constructs:

- The skates used at each stage should be suitable for the activities the skaters are doing.
- The skates should be affordable and fit properly.
- The size of the tracks and ovals should reflect the size and skill of the skaters.

Table 3

Social Issues Conclusions

Volunteers Conclusions

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating has to make the demands on volunteers reasonable, equitable and fair.

Family Conclusions

- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.

Accessibility Conclusions

- Speed skating can make the sport more accessible by changing equipment and travel norms.

Sustainable Environment and Carbon Foot Print Conclusions

- Speed skating programs suited to the developmental needs of individuals can also consider alternative solutions to environmental issues.

SSC Demographics Conclusions

- There is a significant decline in participation from the start to the end of puberty.
- Is it possible to recruit more girls at the 'Active Start' stage of development?
- Team activities should be considered as a proactive approach to declining participation trends especially during puberty.



9. DEVELOPMENTAL RECOMMENDATIONS

The first three items in the preamble to the terms of reference were:

- What an ideal competition system might look like.
- Purposes of competitions, including categories, progressions and series of competitions.
- Physical, social and psychological considerations for competition at each stage of the LTPAD model.

The **developmental recommendations** consider basic program issues in light of the competition review principles, stage objectives and developmental constructs for the following topics:

- SSC age category recommendations
- Activities and distances recommendations
- Nature of feature events and competition recommendations
- Active for Life stage of development recommendations
- Equipment and tracks recommendations
- Social issues recommendations

The primary premise of the competition review is to develop programs that support the long-term development of each participant – **developmentally appropriate programs**. On the premise that maturation and development follow a sequential continuum, each topic is presented in a chronological sequence. Therefore they are organized in the vertical developmental pillars similar to the constructs summarized the previous section.

The discussion of the developmental recommendations is reported in Appendix 3. Table 4 is a summary of the topics included in the Developmental Recommendations Appendix 3.

When the distances currently raced were reviewed with respect to windows of trainability, developmental data did not support many of the distances younger skaters race. The windows of trainability are best defined by time frames. Table 5 provides the time basis for the distances selected. For the younger stages these distances are generally shorter than the distances currently being raced. As the skater gets older the distances were selected to be compatible with international distances.

Table 6 is a summary of the age classes being recommended. The major change is the developmental stages just before and after puberty. There are two developmental effects to be considered: the large differences between individuals due to early and late maturity and the gender differences. During these stages one year windows were recommended to reduce the individual difference effect. Two age category models are proposed: one to reflect gender differences (the developmentally appropriate model) and the other with gender equivalent age classes. For the later stages of development, international age categories are recommended with two new senior categories for the younger senior skaters.

Table 7 is a summary of the proposed continuum of events/competitions. For the early stages, races and ability tests are recommended in practices and at local competitions. Through the growth spurt a new level of competition is proposed with SSC regional competitions to replace national competitions in the 'Training to Train'. National championships are only recommended for skaters in the 'Learning to Compete' developmental stage and older.

While the recommendations cover a wide variety of aspects one other basic area is the specific uniform, skate and facility recommendations. In considering these, the Review Team considered the LTPAD model as well as information specific to speed skating. The information and rationale are discussed in the Developmental Constructs appendix: 'Facilities and Equipment'; as well as the Developmental Recommendations appendix 'Nature of Uniforms' and 'Facilities and Tracks'.

The challenge for all of us is to be able to keep the developmental sequences in mind as we develop programs for each stage.

Table 4**Outline of Developmental Recommendations for the Overarching Event/Competition Structure****1. ACTIVITIES AND DISTANCES**

- Format
- Team Activities
- Distances
- Stage by stage recommendations

2. AGE CATEGORIES

- Critical Date(s) for SSC Ages and Relative Age

3. NATURE OF FEATURE EVENTS AND COMPETITIONS

- National Championships, Competitions, Periodization and Preparation
 - Age for National Championships
 - Ability Meet Format
 - Personal Bests and Records
 - Participation Standards
- Multi-Sport and other International Event Issues
 - Olympic Movement
 - FISU Games
 - Canada Winter Games
 - Provincial Games
- Junior Participation at International Events
 - Participation in National Selection and International events:
 - World Junior Championships
- Junior Specialization
 - Junior World Cup
- Stage Specific Feature Events And Competitions
 - Training and Competition Guidelines
- Periodization

4. 'ACTIVE FOR LIFE' RECREATIONAL COMPETITION, VOLUNTEER, FITNESS AND FUN PARTICIPATION

- Age Categories
- Activities And Distances
- Nature Of Feature Events And Competitions

5. LONG TRACK AND SHORT TRACK (COMMON AND UNIQUE ISSUES)**6. EQUIPMENT and TRACKS**

- Specific Skates for Specific Stages
- Nature of Uniforms
- Facilities and Tracks

7 SOCIAL ISSUES

- Competition Formats
- Duration
- Innovative Event Formats
- Volunteers
- Talent Identification
- Collaboration with Other Related Sports
- Carbon Foot Print, Travel Costs and Other Environmental Issues



Table 5

Distances for Each Stage

Stage of Development	Female Age	Male Age	Emphasis
FUNdamentals	6 to 8	6 to 9	Racing 0 to 30 seconds. Emphasis on skills
Learning to Train	8 to 11	9 to 11	Racing 0 to 45 seconds. Events 10 min. + Emphasis on skills (window opportunity skill)
Training to Train	11 to 15	12 to 16	Racing 0 to 60 seconds (avoid 60 to 90 seconds) Events 10 min. + Add one distance 90 seconds +
Training to Compete	16 to 21 +	16 to 23 +	ISU distances
Training to Win	18 +	19 +	ISU distances
Active for Life	-		Would depend on objectives of participants
			Competitive: International distances Health: longer distances e.g. road racing and skiing

Table 6**Two Models of Age Categories**

No Gender Distinction			Gender Distinction	
Male	Female		Male	Female
6 to 9	6 to 8	FUNDamentals	6 to 9	6 to 8
9 to 11	8 to 11	L2T	10 to 12	9 to 11
U12	U12	T2T pre PHV B	12 +U*	11 +U*
U13	U13	T2T pre PHV A	13 +U*	12 +U*
U14	U14	T2T post PHV B	14 +U*	13 +U*
U15	U15	T2T post PHV A	15 +U*	14 +U*
15 to 16	15 to 16	ISU Junior B	16 or (15 to 16)	15 to 16
17 to 18	17 to 18	ISU Junior A	17 to 18	17 to 18
19 to 20	19 to 20	Neo Senior B	19 to 20	19 to 20
21 to 23	21 to 23	Neo Senior A	21 to 23	21 to 23
24+	24+	Senior	24 +	24 +
30+	30+	Masters 30	30 +	30 +
35+	35+	Masters 35	35 +	35 +
		Etc.	Etc.	Etc.
		Master 85	85 +	85 +

- 'Active Start' stage of development is intentionally left out because of the recommendation of no formal competition.
- The designation L2T stands for 'Learning to Train' stage of development
- The designation T2T stands for 'Training to Train' stage of development
- Pre and post PHV stand for the periods before and after Peak Height Velocity
- * The designation for L2T and T2T is an age with an addition '+U'. The later is a provision to allow early maturers (physically, psychologically and socially) who have appropriate performance scores to compete against older children. (e.g. 14 +U means 14 and under)
- U15 means less than 15 years of age at the critical date.
- Active for life categories are grouped as + categories so that individuals who choose against skaters who are younger and fitter may be recognised for their achievements within that context and promote meaningful competition.
- For the younger ('FUNDamentals' and most of the 'Learning to Train') stage of development the table reflects different gender categories but there is no need for gender specific events.
- 'Training to Train' developmental stage categories are denoted age and under (e.g. 15 +U) to allow for early maturers (physical, psychological and social) who have appropriate skating performances to compete against older skaters
- All categories assume ability grouping within the category while respecting the designated distances.
- The age categories are labelled with stage of development titles to focus on the importance of the LTPAD model especially on providing developmentally appropriate activities and program.



Table 7
Summary of competition continuum

	FUNd	L2T	T2T Pre-PHV	T2T Post-PHV	L2C	T2C	L2W	T2W
Race Types	Skill	Skill	Skill & Traditional, Team	Traditional & Team	Traditional & Team	Traditional & Team	Traditional & Team	Traditional & Team
# Dev Comps	0 – 6	4 – 8	3 – 5	4 – 6	5 – 6	Individualised	Individualised	Individualised
# Perf Comps	None	None	2 – 3	2 – 3	2 – 4	Individualised	Individualised	Individualised
Totals	0 – 6	4 – 8	5 – 8	6 – 8	7 – 10	8 – 10	8 – 10	8 – 10
Level	Club/Interclub	Interclub/ Provincial	Provincial/ Regional	Regional/ Regional	Regional/ National	National/ International	National/ International	National/ International
Length of event	½ day	½ - 1 day	1 & 2	1 & 2	2 & 3	2 & 3	2 & 3	2 & 3
Races per event (ST)	12+	12+	7 – 10	7 – 10	8 – 18 (4 – 6/day) 4 – 6 (2 -3/day)	8 – 18 (4 – 6/day) 4 – 6 (2 -3/day)	10 – 15 (3 – 7/day) 2 – 5 (1 -2/day)	10 – 15 (3 – 7/day) 2 – 5 (1 -2/day)
Major Events	Local Festival	Prov. Festival	Provincial & Regional Champs	Provincial & Regional Champs	CDN JR Champs	CDN Champs	World Cups	World Champs
Multi-sport Games	None	None	Provincial/ Regional	Provincial/ Regional	Canada Games	Canada Games & FISU	FISU & Olympic	Olympic

10. STAGE BY STAGE DEVELOPMENTALLY APPROPRIATE PROGRAM RECOMMENDATIONS

The summary statements and matrices are designed to help SSC standing committees and the membership understand the recommendations for each specific stage of development. At each stage programs must consider all the developmental constructs to achieve the stage objectives. They are based on the vertical strength of the LTPAD developmental concepts and constructs and related recommendations and must be compatible with the objectives for each stage.

These are organized by stages of development and lead to direct program recommendations for each stage. The Review Team has carefully considered speed skating and the developmental model to make recommendations of an ideal program for each age. For each stage discussion of where the matrices vary from the other documents an explanation in the summary statement that precedes that specific matrix. In general they match but there is no need for absolute agreement.

Each stage will be presented with a set of summary statement and the matrix for the stage.

The original matrices included material related to officiating and coaching. To reduce the amount of information in each matrix these were made into stand alone matrices. While absolutely critical to the success of any program, the role of these two groups is to deliver the best program. However what they do does not define the competition or event.



STAGE: **FUNdamentals**

Female 6-8, Male 6-9

Preparation Objectives:

- ✓ Learn to skate focusing on fun.
- ✓ Learn all fundamental movement skills and build overall motor skills emphasizing general athleticism (agility, balance, coordination, speed).
- ✓ Develop Physical Literacy = Fundamental Movement Skills + Fundamental Sport Skills + Decision Making.

Contribution of Competition to Participant Development

- Provide a fun environment in which young skaters can race primarily in skills-based competition.
- Reinforce the emphasis on fundamental movement skills and general athleticism during practices in the club environment.

Key Recommendations

- Competitions should focus on skill-based events which emphasize the development of the ABC's (Agility, Balance, Coordination & Speed).
- Hockey style skates are recommended.
- Competitions are limited to approximately 4 hours in duration (i.e. 1/2 day club or local interclub).
- Traditional racing to be comprised of similar amounts of clockwise and counter-clockwise racing on a 75m oval track.
- Skaters are strongly encouraged to skate in a track suit or other loose clothing. Skin suits are not necessary.

Other Comments/Implications

- Recommended changes in the competitive structure will facilitate the development of all-around athletes and speed skaters.
- Speed skating should be the sport through which Canadian youth learn to skate.
- Speed skating should be more accessible by promoting the use of hockey-style skates and more basic clothing.
- By being more agility and skills based, speed skating could become a service provider to participants in other ice sports wishing to improve their skating skills, specifically speed for Hockey, Ringette or Figure Skating.
- Speed skating clubs should seek partnerships with hockey and ringette clubs to provide combined or complementary programs in their communities.
- Introduce skaters to The Cutting Edge skills program which corresponds to the competitive events.
- Reinforce progress through pins or badges with rewards achieved in training and practice.
- Report cards acknowledging participation and skill development should be developed.
- Emphasis at competitions should be placed upon demonstrating skills and the ABCs.
- Entry point for new sport participants as volunteers, social event for parents.

FUNDamentals (FUNd) - Long Track and Short Track

Age: Female 6-8 Male 6-9

Stage Objective: Learn all fundamental movement skills and build overall motor skills.

Find Your Edge Objective: Basic Movement Skills

<p>Preparation Objectives</p>	<p>Learn to skate focusing on fun</p> <p>Learn all fundamental movement skills and build overall motor skills</p> <p>Develop Physical Literacy = Fundamental movement skills + sport specific skills + decision making</p> <p>Emphasise general athleticism (agility, balance, coordination, speed), critical skill and skating literacy</p>	<p>Windows of Trainability</p>	<p>1st Speed (Girls 7-9, Boys 6-8)</p> <p>Suppleness</p> <p>Physical Literacy¹</p>
		<p>Education</p>	<p>Primary School - Full days</p>
<p>Event Objective(s)</p>	<p>Skill development through fun races</p>	<p>Competition Format</p>	<p>Length: 1/2 day format (4hrs max duration)</p> <p># of races/competition: 12+</p> <p>Groupings: Mixed Gender Ability</p> <p>Block racing, participants on the field of play for 15-20 minutes, max 3 blocks/competition</p> <p>Directed off ice-ice activities</p> <p>Mass start racing (ST & LT) + Team events</p>
<p>Events (number and level)</p>	<p>Simulations: Frequent informal racing on skates in practice (Racing is FUN)</p> <p>Developmental: 0 - 6, Club/Local Interclub</p> <p>Performance: 0</p>		
<p>Event Results</p>	<p>Skill execution (feedback) & speed (time),</p> <p>Mass start for fun (not timed)</p> <p>Awards: Given to all for participation (reinforce self-esteem), recognise Personal Bests when times are recorded</p> <p>Records: None</p>	<p>Skater's Equipment</p>	<p>Hockey style skates</p> <p>Track suits or loose clothing (Skinsuits not necessary)</p> <p>Short Track & Long Track Mass Start: helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses or full face mask (speed skates only)</p>
<p>Event Format</p>	<p>Skill e.g.. Slalom, Start/Stop, Jumping lines, etc...</p> <p>Duration: 0-30 sec</p> <p>Direction: Equal # clockwise & Counter-clockwise on track & circles + straight line</p> <p>Games based events</p>	<p>Preparation Guidelines</p>	<p>Sport participation: 3-4 additional (sport specific seasons)</p> <p>Skating season: Should not exceed 24 weeks/year, Recommend 1-2, 8-12 week semesters per year</p> <p>Sessions/week: 1-2 on-ice (45 min sessions)</p> <p>Periodization: None</p>
<p>Facilities</p>	<p>Any size ice surface (ST)</p> <p>Outdoor ice - smaller is better (LT)</p> <p>For traditional racing</p> <ul style="list-style-type: none"> o ST - 75m oval o LT - Small tracks inner radius 200m-400m 		

¹ Physical literacy is the development of fundamental movement skills and fundamental sport skills that permit a child to move confidently and with control, in a wide range of physical activity, rhythmic (dance) and sport situations. Physical literacy also includes the ability to "read" what is going on around them in an activity setting and react appropriately to those events as defined in Developing Physical Literacy. *A Guide For Parents of Children Ages 0 to 12, A Supplement to: Canadian Sport for Life (Canadian Sport Centres, 2008) p. 5.*



STAGE: Learning to Train

Female 8-11, Male 9-12

Preparation Objectives:

- ✓ Ensure the development of fundamental sport skills and speed skating-specific skills. Skill Development window of opportunity.
- ✓ Emphasize the development of physical literacy.

Contribution of Competition to Participant Development

- Reinforce the development of physical literacy, critical skill and self-esteem through participation in fun races.
- Provide meaning to the training environment by offering an opportunity to showcase skills acquired and measure improvements.
- Critical stage in the competition continuum, participants begin to identify with one or two primary sports.

Key Recommendations

- Emphasis on speed skating-specific skills (technical development).
- Speed skates are recommended once skaters can execute FUNDamental skating skills on hockey skates. However, until skaters achieve this competency hockey skates are recommended.
- Minimise the amount of travel time and resources required to participate in competitions (e.g. no national championships).
- Time duration in races should be less than 45 seconds to emphasize speed or more than 10 minutes to emphasize stamina.
- For the shorter time frame individual distances would be selected that normally finish in 45 seconds or in relays.
- A new event is proposed to help ensure appropriate effort for the aerobic-based longer time; a specific length of time race (e.g. 10 minutes) in which performance is measured by the distance an individual skates in the fixed time. The aerobic effect can also be achieved in individual or team events such as a team pursuit.
- Team events should be introduced during this stage as featured events in the middle of the competitive program. These events are not an option for cancelation due to time limitations.
- Long-blade skating is to be restricted to fixed-blade skates.
- Current 111.12m Oval Track for Short Track be replaced with 100m Oval Track when skaters participate in traditional racing.
- A place in competition for racing on hockey style skates is to be maintained.
- Increase the number of competition opportunities to 4 to 8 per season. The events should be comprised of a variety of Club and Interclub Competitions with limited province/territory wide competition.
- Skaters are strongly encouraged to skate in track suits or other loose clothing. Skin suits are not necessary.

Other Comments/Implications

- New competitions formats should provide participants with an opportunity to complete more races in less time.
- Competitions should provide opportunities off the field of play for unstructured play.
- Continue *The Cutting Edge* skills program. Reinforce progress through pins or badges with rewards achieved in practice.
- Emphasis at competitions should be placed upon personal bests, challenging oneself and having fun.
- Distances must be kept short enough to respect the physiological development of participants.
- Skating Festivals are encouraged.
- Expose skaters to short track and long track.
- The L2T and T2T are the most important stages of athletic preparation. During these stages, we make or break skaters.

Learning to Train (L2T) - Long Track and Short Track

Age: Female 8-11 Male 9-12

Stage Objective: Learn overall sports skills

Find Your Edge Objective: Fundamental sports skills including speed skating skills

<p>Preparation Objectives</p>	<p>Ensure the development of fundamental sport skills and speed skating specific skills. This is the window of opportunity for skill development</p> <p>Emphasize the development of physical literacy</p>	<p>Windows of Trainability</p>	<p>Skill</p> <p>Supleness until chronological age 10</p> <p>Physical Literacy¹</p>
<p>Event Objective(s)</p>	<p>Skill and speed demonstration and development through fun races</p>	<p>Education</p>	<p>Primary School - Full days</p> <p>Entry into middle school</p>
<p>Events (number and level)</p>	<p>Simulations: Frequent informal racing on skates in practice (Racing is FUN)</p> <p>Developmental: 4 - 8, Club/Interclub</p> <p>Performance: 0</p>	<p>Competition Format</p>	<p>Length: 3 - 6 hour duration (travel time dependent)</p> <p># of races/competition: 12+</p> <p>Groupings: Mixed Gender Ability</p> <p>Block racing, Participants on the field of play for 15-20 minutes</p> <p>Team events featured in middle of competition</p>
<p>Event Results</p>	<p>Skill Progress Report Card (to individual)</p> <p>Head to head mass start races (not generally timed, except some events for the purpose of recognizing Personal Bests)</p> <p>Awards: Given to all for participation (reinforce self-esteem), recognise Personal Bests when times are recorded</p> <p>Team Result: Combined relay + individual results</p> <p>Records: None</p>	<p>Skater's Equipment</p>	<p>Fixed blades only (No Clap skates for long track)</p> <p>Track suits or loose clothing (Skinsuits not necessary)</p> <p>Short Track & Long Track Mass Start: Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses or full face mask (speed skates only)</p>
<p>Event Format</p>	<p>Skill events e.g.. Slalom, Start/Stop, Jumping lines, etc..</p> <p>Duration: 0 - 45 sec & 10 min continuous skating (relay or team event)</p> <p>Direction: Equal number of clockwise & counter-clockwise</p> <p>Progression: Skill based events to regular timed towards end of stage</p>	<p>Preparation Guidelines</p>	<p>Sport participation: 2-3 additional (sport specific seasons)</p> <p>Skating season: 22-29 weeks/year</p> <p>Sessions/week: 2-3 on-ice (60-75 min sessions)</p> <p>Periodization: Introduce Single towards end of stage</p>
<p>Facilities</p>	<p>Any size ice surface (ST)</p> <p>Small Track or utilise warm-up lane (LT)</p> <p>For traditional racing</p> <ul style="list-style-type: none"> o ST - 100m oval o LT - Small tracks inner radius "(warm-up lane) 200m-400m 		

1 Physical literacy is the development of fundamental movement skills and fundamental sport skills that permit a child to move confidently and with control, in a wide range of physical activity, rhythmic (dance) and sport situations. Physical literacy also includes the ability to "read" what is going on around them in an activity setting and react appropriately to those events as defined in Developing Physical Literacy. A Guide For Parents of Children Ages 0 to 12, A Supplement to: Canadian Sport for Life (Canadian Sport Centres, 2008) p. 5.

2 Find Your Edge, Speed Skating Canada's Long Term Athlete Development Plan, 2006, p. 16



STAGE: Training to Train (Pre-PHV/PHV)

Female 11-13, Male 12-14

Preparation Objectives:

- ✓ Build the engine and sport specific skills: aerobic base, speed and further consolidate sport specific skills.
- ✓ Major fitness development stage, critical attention should be paid to individual growth, development and maturation.

Contribution of Competition to Participant Development

- Fun experience allowing participants to demonstrate the benefits of practice and hard work.
- Races need to be meaningful, fun and provide a high degree of challenge.
- Each event should be exciting and provide motivation and purpose to athletes.
- Provide the long-term foundation for how athletes approach training, competition and life.
- Serve as a learning ground for how to overcome adversity both in sport and in life.
- Participants are introduced to mental and physical challenges which will prepare them for racing in later stages.

Key Recommendations

- Minimize the amount of travel time and resources required to participate in competitions.
- National Age Class Championships are to be replaced with Canadian Regional Championships.
- Speed skates are recommended with no restriction on type of skate or blade, all equipment restrictions from previous stages are removed.
- 1 year age categories with 2 critical dates for competition – January 1st and July 1st.
- Time duration in races should be less than 60 seconds to emphasize speed or more than 10 minutes to emphasize stamina.
- For the shorter time frame individual distances races which normally finish in 45 seconds or less should be selected.
- A new event is proposed to help ensure appropriate effort for the aerobic-based longer time; a specific length of time race (e.g. 10 minutes) in which performance is measured by the distance an individual skates in the fixed time. The aerobic effect can also be achieved in individual or team events such as a team pursuit.
- Team events are featured events in the middle of competitions.
- 100m oval track in short track, 200m-400m tracks in long track.
- 1 – 3 performance competitions/season. One performance competition prior to Christmas, others at end of season (February/March).
- Performance competitions are preceded by developmental competitions.
- An athlete's competitive season should total 5 – 8 competitions (developmental & performance).
- Race simulations are recommended for athlete preparation.

Other Comments/Implications

- End of the continuum of introducing participants to racing.
- Transition into traditional speed skating racing during this stage.
- Skill competitions will be progressively phased out as the window of trainability for skill closes and emphasis shifts towards speed and aerobic development.
- Competition may be a significant source of motivation for participants. However, participation in competitions must be carefully managed by coaches and parents to ensure sufficient time is allocated to training and the consolidation of skills.
- It may be necessary for coaches, parents and participants to manage performance expectations for a period of time while participants progress through their growth spurt (PHV period).
- Distances must be kept either short enough to focus on speed development or long enough for aerobic development.
- Social interaction is an important reason for participation in sport and needs to be facilitated through competition.
- Regional championships are restricted events.
- The L2T and T2T are the most important stages of athletic preparation. During these stages, we make or break skaters.

Training to Train (T2T), Pre-PHV/PHV - Long Track and Short Track

Age: Female 11-13 Male 12-14

Overall Objective: Build an aerobic base, develop speed and strength towards the end of the stage, and further develop and consolidate sport specific skills

Find Your Edge Objective: Build the engine and sport specific skills

<p>Preparation Objectives</p>	<p>Build the engine and sport specific skills: aerobic base, speed and further consolidate sport specific skills</p> <p>Major fitness development stage, critical attention should be paid to individual growth, development and maturation</p>	<p>Windows of Trainability</p>	<p>Skill until onset of PHV</p> <p>Aerobic capacity with onset of PHV</p> <p>Speed (0-20sec)</p>
<p>Event Objective(s)</p>	<p>Learning competition basics</p> <p>Emphasis placed on team events</p> <p>Reinforce training priorities of speed & stamina</p> <p>Skaters race to win each race while emphasising personal bests</p>	<p>Education</p>	<p>Entry into middle school and high school</p>
<p>Event Objective(s)</p>	<p>Simulations: Fun races & simulations in training</p> <p>Developmental: 3 - 5, Interclub/Provincial</p> <p>Performance: 1 pre-Christmas, 1-2 end of season</p> <p>Regional Canadian Champs (Dec & Feb/March)</p>	<p>Competition Format</p>	<p>Length: Local (1 day), Prov & Regional Champs (2 day)</p> <p># of races/competition: 7-10</p> <p>Groupings: Mixed Gender Ability, skaters must race stage appropriate distances or Age Class</p> <p>Age Classes: 1 year, 2 critical dates (July 1, Jan 1)</p> <p>Team events featured in middle of competition</p> <p>Specification for Long Track: Mass start & Olympic Style combined in single competition (1 Olympic Style, 2 Mass Start, 1 Team event per day)</p>
<p>Events (number and level)</p>	<p>Awards: Recognise Personal Bests; Overall & Single Distance</p> <p>Team awards: Combined result individual events & relay</p> <p>Records: None</p> <p>Results are posted</p>	<p>Skater's Equipment</p>	<p>All skate/blade restrictions removed</p> <p>Club track suit or skinsuit</p> <p>Mass Start (ST + LT): Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses</p> <p>Long Track Olympic Style: Cut resistant socks</p>
<p>Event Results</p>	<p>Awards: Recognise Personal Bests; Overall & Single Distance</p> <p>Team awards: Combined result individual events & relay</p> <p>Records: None</p> <p>Results are posted</p>	<p>Preparation Guidelines</p>	<p>Sport participation: LT & ST + 1-2 additional sports</p> <p>Skating season: 22-29 weeks/year</p> <p>Sessions/week: 2-4 on-ice, 4-6 total</p> <p>Periodization: Single or Double</p> <p>Important to accommodate athletes participating in other sports, encourage participation in 1-2 other sports per year</p>
<p>Event Format</p>	<p>Timed skills events & traditional racing</p> <p>Long Track</p> <ul style="list-style-type: none"> · Mass Start: 200m, 500m, 2400m · Olympic Style: 100m, 300m · Team: Relay - 100m or 200m exchanges, Team Pursuit, Point Competition <p>Short Track</p> <ul style="list-style-type: none"> · 10 min race (relay or team race) · 100m individual pursuit · 300m, 500m, · Team: Relay (2000m, teams of 5, 100m exchanges), Team Pursuit, Points Competition 		
<p>Facilities</p>	<p>Long Track</p> <ul style="list-style-type: none"> · 200m - 400m tracks - Mass Start on inner lane <p>Short Track</p> <ul style="list-style-type: none"> · 100m oval · 85'x200' or 100'x200' Rinks 		



STAGE: Training to Train (PHV/Post-PHV)

Female 14-15, Male 15-16

Preparation Objectives:

- ✓ Physical Development ('Building the engine').
- ✓ Major fitness development stage (skill, speed, strength, suppleness).
- ✓ Consolidation of sport specific skills.
- ✓ Make aerobic training a priority.

Contribution of Competition to Participant Development

- First stage where significant emphasis is placed on traditional racing.
- Source of motivation for participants.
- Offer a fun social environment in which participants will learn important life and competition skills.

Key Recommendations

- Continue to manage the amount of travel time and resources required to participate in competitions.
- National Age Class Championships are replaced with Canadian Regional Championships.
- 1 year age categories with 2 critical dates for competition – January 1st and July 1st.
- Event durations of 0 – 60 sec and 2.5 min+ to emphasize development of speed and aerobic power.
- In short track for the 2.5 + minute aerobic power event, to help insure appropriate effort the fixed time format noted above is recommended. This could also be achieved as an individual event or as part of a team event such as the team pursuit.
- Implementation of 25 lap marathon with team and individual results and awards in long track.
- Team events are featured events in the middle of competitions.
- 100m oval track in short track and racing on tight radiuses (20-22m) in long track where possible.
- 1 – 3 performance competitions per season, one performance competition prior to Christmas, others at the end of season.
- Performance competitions are preceded by developmental competitions.
- An athlete's competitive season should total 6 – 9 competitions (developmental & performance).
- Race simulations are recommended for athlete preparation.
- Introduction to year-round training and periodized training and competition.
- Introduction to selection events.

Other Comments/Implications

- Competitive events must be reflective of the windows of trainability and should serve as a good indicator of the impact of training.
- Significant differences will begin to appear between athletes who train year round versus those who to train seasonally.
- It is important that coaches carefully monitor competition volume to ensure sufficient training and recovery time.
- Athletes may need to manage their performance expectations through PHV as they adapt to the increased length of limbs. Athletes may encounter decreased performance during this phase.
- Distances must be short enough to focus on speed development or long enough for aerobic development.
- Social interaction is an important motivational factor and needs to be facilitated through competition.
- Exposure to the mental and physical challenges of racing (develop mental preparation).
- Regional championships are restricted events.
- Introduction of races emphasizing aerobic power (VO₂max) 2.5min duration+.
- Complementary sports should emphasize aerobic development.
- The L2T and T2T are the most important stages of athletic preparation. During these stages, we make or break a skater!
- Over-competition and under-training result in a lack of basic skill and fitness.

Training to Train (T2T), PHV/Post-PHV - Long Track and Short Track

Age: Female 14-15 Male 15-16

Overall Objective: Develop speed and strength, further develop and consolidate sport specific skills

Find Your Edge Objective: Build the engine and sport specific skills

<p>Preparation Objectives</p>	<p>Physical Development ('Building the engine') Major fitness development stage (skill, speed, strength, suppleness) Consolidation of sport specific skills Emphasize aerobic training</p>	<p>Windows of Trainability</p>	<p>Aerobic power progressively as PHV decelerated End of second window for speed (0-20sec) Females: Strength as PHV decelerates Males: Strength, 12-18 months after PHV begins to decelerate</p>
<p>Event Objective(s)</p>	<p>Learn to cope with the physical and mental challenges of competition Emphasis placed on team events Reinforce training priorities of speed & stamina Skaters race to win each race while emphasising personal bests Transition from mass start to Olympic style in Long Track</p>	<p>Education</p>	<p>High school, post-secondary admission requirements start to become a factor. Selection of College or CEGEP</p>
<p>Events (number and level)</p>	<p>Simulations: Fun races & simulations in training Developmental: 4 - 6, Interclub/Provincial Performance: 1 pre-Christmas, 1-2 end of season Regional Cdn. Champs (Dec & Feb/March)</p>	<p>Competition Format</p>	<p>Length: Local (1 day), Prov & Regional Champs (2 day) # of races/competition: 7-10 Groupings: Mixed Gender Ability, skaters must race stage appropriate distances or Age Class Age Classes: 1 year, 2 critical dates (July 1, Jan 1) Team events featured in middle of competition Additional Specifications for Long Track · 2 day events · 2 individual events/day · Team pursuit - Day 1, Marathon - Day 2</p>
<p>Event Results</p>	<p>Awards: For team and individual performance Team Result: LT Combined points TP + Marathon ST - Total distance (all skaters 10min race) + relay Records: None Rankings: Introduction of provincial rankings, concept of relative importance Selection: Competitions for selection purposes are introduced</p>	<p>Skater's Equipment</p>	<p>Mass Start (LT + ST) : Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses Long Track Olympic Style: Cut resistant socks</p>
<p>Event Format</p>	<p>Long Track · 25 lap marathon - Individual & Team Points · Mass Start: 300m · Olympic Style: 100m, 500m, 2000m · Team Pursuit Short Track · 10 min race · 100m individual pursuit · 300m, 500m, 1500m · Team: Relay (3000m, teams of 4)</p>	<p>Preparation Guidelines</p>	<p>Sport participation: LT & ST + 1-2 additional sports Training season: Year round (40 weeks) with 2-3 periods of active rest, 22-29 week skating season/year Sessions/week: 6-9 sport specific. 3-5 on-ice and 3-4 off-ice. Periodization: Double, 1 per sport (ST/LT or summer) Important to accommodate athletes participating in other sports, Encourage participation in 1-2 other sports per year</p>
<p>Facilities</p>	<p>Long Track · 200m - 400m tracks - Mass Start on inner lane Short Track · 100m oval · 85'x200' or 100'x200' Rinks</p>		<p>Simulate competitive situations in training through practice races or competitive games/drills</p>



STAGE: Learning to Compete

Female 15-17, Male 16-18

Preparation Objectives:

- ✓ Optimize the engine (Physical Capacity).
- ✓ Speed skating specific skills (Technique & Racing) and fitness.

Contribution of Competition to Participant Development

- The first stage of development where athletes are introduced to national level competitions, providing a new level of performance to strive for.
- The primary purpose of competition during this stage should be to expose athletes to a large variety of competitive experience in order to develop specific race preparation techniques and execute a variety of race strategies.
- Selection to teams may start to become a priority.
- Develop confidence in taking risks while racing.
- Learning in the competitive environment.

Key Recommendations

- To define the competition calendar utilise a periodization model based on the best athlete development scientific data available.
- An emphasis to be placed on developmental competitions (5-7/year) vs. performance competitions (2-4 /year).
- National Championships and records introduced.
- International skating is restricted to ISU JR A.
- 111m track in Short Track Introduced and requires International Ice.
- All ISU distances are raced.
- 100m Long Track and 111m Individual Pursuit in Short Track are emphasized to promote the development of speed.
- A separate stream for athletes who are in the Active for life stage needs to be developed.
- ISU Junior Age athletes not permitted to participate in Fall World Cups or related selection events.
- Addition of a 3000m points race in short track to promote aerobic development.

Other Comments/Implications

- To create effective learning opportunities athletes must have the opportunity to participate in competitions which are meaningful but do not have an impact on team selection or the financial support which they receive.
- The competition calendar should be based on optimal periodization. Adjusting the competitive calendar to match optimal periodization will facilitate the task of the coach by providing an easy template to work from and increase the amount of time which can be spent developing skills, physical and mental capacities.
- SSC should target a wide pool of developing athletes in this stage and invest in late-entry and development camps. This could occur internally as well as externally.
- Social interaction is an important factor in the reasons for participation and needs to be facilitated through competition.
- Introduction to middle distance racing.
- Quality of ice in both training and competition should be emphasized for safety and development.

Learning to Compete (L2C) - Long Track and Short Track

Age: Female 15-17 Male 16-18

Overall Objective: Optimize the engine and learn to compete

Find Your Edge Objective: Optimize the Engine, Speed Skating Specific Skills and Fitness

<p>Preparation Objectives</p>	<p>Optimizing the engine(Physical Capacity), speed skating specific skills (Technique & Racing) and fitness; Objectives of Train to Train stage should be attained before entering Learn to Compete</p>	<p>Windows of Trainability</p>	<p>Stamina, introduce aerobic power (2-10 min) post-PHV All systems trainable as PHV ends Males: Speed (0-20sec) ends early in the stage. Strength, 12-18 months after PHV begins to decelerate Females: Strength as PHV decelerates</p>
<p>Event Objective(s)</p>	<p>Improve sport specific endurance Introduce variety of racing experiences Develop race strategies Performance starts to become a factor Continued competitive development</p>	<p>Education</p>	<p>End of High School, CEGEP & Colleges Preparing for Post-secondary Admissions</p>
<p>Events (number and level)</p>	<p>Simulations: Frequent Developmental: 5 - 6, Provincial & Regional Performance: 2 - 4, national and regional Introduction of National Championships Some National Events including Canada Games World Junior Champ. for ISU JR - A (17-18)</p>	<p>Competition Format</p>	<p>Length: 2 - 3 days Age Class and Open Format meets Age Classes: ISU JR - A + B Team events featured in middle of competition Short Track: 4-6 races/day Additional Specifications for Long Track · 2 day events · 2 individual events/day · Team pursuit - Day 1, Marathon - Day 2</p>
<p>Event Results</p>	<p>Awards: Team & Individual Results Team Results: Combined relay & individual results Records: CDN records introduced Rankings: Provincial & National Selection: Provincial Teams, National JR, Talent Squad & Development Teams</p>	<p>Skater's Equipment</p>	<p>Short Track & Long Track Mass Start: Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses Long Track Olympic Style: Cut resistant socks</p>
<p>Event Format</p>	<p>Regional events use T2T distances & format Long Track · Mass Start: 25 laps marathon · ISU Distances: 100m, 500m, 1000m, 1500m, 3000m, 5000m, 10 000m · Team pursuits Short Track · ISU Distances : 500m, 1000m, 1500m · 3000m points race · 111m Individual Pursuits · Relays 3000m/5000m</p>	<p>Preparation Guidelines</p>	<p>Sport participation: 1-2 sports + cross training ST/LT Training Season: Year round (3-6 week transition), 22-29 week skating season Sessions/week: 6-9/week (4-6 ice, 3-5 off-ice) Periodization: Double Teach skaters to perform sport specific skills under a variety of competitive conditions in training</p>
<p>Facilities</p>	<p>Long Track · 400m tracks Short Track · 111.12m oval · 100'x200' Rinks</p>		



STAGE: Training to Compete

Female 17-21, Male 18-21

Preparation Objectives:

- ✓ Further Optimizing the Engine, Speed Skating Specific Skills and Fitness.
- ✓ Shift in emphasis towards competitive development.

Contribution of Competition to Participant Development

- Reflects the ISU age groupings, competition system and distances to be skated in the major competitions.
- Provides athletes the opportunity to practice skills necessary for international success.

Key Recommendations

- To define the competition calendar utilise a periodization model based on the best athlete development scientific data available.
- Schedule competitions to account for intensive periods in post secondary education calendars.
- ISU Junior Age athletes not be permitted to participate in Fall World Cups or related selection events.
- Only indoor tracks used for world team selections in long track to eliminate the need for back-up selection events.
- A boardless mat system required to host World Team Selection Events to minimize the risk of injury in an environment where many athletes are racing in a high stakes situation for the first time.
- Addition of a 3000m points race in short track to promote aerobic development.

Other Comments/Implications

- Participation in World Cups should be compatible with long-term athlete development and educational plans.
- Junior athletes who qualify for World Cups only compete in World Cups after the Junior World Championships.
- Exposure to the mental and physical challenges of racing.
- Specialisation in Short Track and Long Track, cross-over training recommended.
- Schedule Performance competitions to allow for blocks of training for development. (Optimal Periodization).
- Seek to develop strong domestic competitive opportunities.

Training to Compete (T2C) - Long Track and Short Track

Age: Female 17-21 Male 18-21

Overall Objective: Optimize the engine and train to compete

Find Your Edge Objective: Further Optimizing the Engine, Speed Skating Specific Skills and Fitness

Preparation Objectives	Further optimizing the engine, speed skating specific skills and fitness; Shift in emphasis towards competitive development	Windows of Trainability	All systems fully trainable High emphasis on aerobic power development
Event Objective(s)	Experience variety of racing conditions Develop race strategies Performance becomes a more significant factor	Education	Entry into post-secondary education
Events (number and level)	Simulations: As per indiv. Plan Developmental: As per indiv. Plan Performance: As per indiv. Plan 8 - 10 competitions/season Regional/National Events & Championships FISU & Canada Games ISU Junior & Senior Events	Competition Format	Length: 2 - 3 days Age Class and Open Format meets Age Classes: ISU JR - A, Neo Senior - 1, Neo Senior - 2, Senior Short Track: 4-6 races/day Additional Specifications for Long Track · 2-3 individual events/day · Team pursuit
Event Results	Awards: Team & Individual Results Team Results: Combined relay & individual results Records: CDN & World Rankings: Provincial & National Selection: Provincial & National Teams, Specific Events	Skater's Equipment	Short Track: Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses Long Track Olympic Style: Cut resistant socks
Event Format	Long Track · ISU Distances: 100m, 500m, 1000m, 1500m, 3000m, 5000m, 10 000m · Team pursuits Short Track · ISU Distances : 500m, 1000m, 1500m · 3000m points race · Relays 3000m/5000m	Preparation Guidelines	Sport participation: 1 + cross training ST/LT Training Season: Year round (3-6 week transition), 36-38 week skating season Sessions/week: 6-9/week (4-6 ice, 3-5 off-ice) Periodization: Individualized Refine sport specific skills under a variety of competitive conditions in training
Facilities	Long Track · 400m tracks · Indoor tracks for World Championship Team Selection Events Short Track · 111.12m oval · 100'x200' Rinks · Boardless system for World Championship Team Selection Events		



STAGE: Learning and Training to Win (Long Track)

Female & Male 21+

Preparation Objectives:

- ✓ Maximizing the engine and speed skating specific skills and fitness.
- ✓ Refine technique and racing skills so athletes are as fast as they can be.
- ✓ Learn to optimize physical and mental recovery, optimize equipment and lifestyle habits for maximal performance.

Contribution of Competition to Participant Development

- Ultimate demonstration of mastery of speed skating in specific events and discipline.
- Defines the training which each competitor must use to complete.
- Major events define the program; other events serve as preparation events and learning experiences for major events.
- Source of national and sporting pride for participants in all other stages.

Key Recommendations

- Scheduling of events to accommodate key international competitions such as World Cups, World Championships and Olympics.
- Scheduling of events to provide appropriate equivalent experience for skaters not selected for key international competitions.
- National calendar should be set to promote optimal preparation for international events.
- Promote events to the ISU which favour SSC athletes or potential athletes (i.e. 100m LT).
- Indoor track used for (senior) long track championships and world championship selection events.

Other Comments/Implications

- SSC should work to positively influence the international calendar to facilitate optimal preparation.
- Be meaningful for all participants (spectators, coaches, officials, volunteers, and support staff).
- Recognize volunteerism and the contributions that volunteers make to enable events to take place.
- Competition emphasis based upon individualized plan.
- Re-setting goals for transition to active for life participation.
- Domestic event scheduling should promote opportunities to simulate major events (e.g. Olympics, and World Championships) with regards to time of day of races and time between races.
- Training and competing in this stage is very demanding, therefore at this level skating requires a full time commitment.

Learning to Win (L2W) and Training to Win (T2W) - Long Track

Age: Female & Male 21 +

Overall Objective: Podium Performance

Find Your Edge Objective: Further Maximizing the Engine and Speed Skating Specific Skills and Fitness

<p>Preparation Objectives</p>	<p>Maximizing the engine and speed skating specific skills and fitness</p> <p>Refine technique and racing skills so athletes are as fast as they can be</p> <p>Learn to optimize physical and mental recovery, optimize equipment & lifestyle habits for maximal performance</p>	<p>Windows of Opportunity</p>	<p>All systems fully trainable</p>
		<p>Education</p>	<p>Post-secondary</p> <p>School course load adjusted based on competitive cycle</p>
<p>Event Objective(s)</p>	<p>Achieving podium performances</p> <p>Performance on demand</p>	<p>Competition Format</p>	<p>Length: 2 - 4 days</p> <p>Age class and open format</p> <p>Age Classes: Neo Senior - 2; Senior</p> <p>1 - 2 individual events/days</p> <p>Team pursuit</p>
<p>Events (number and level)</p>	<p>8 - 10 competitions per season</p> <p>Performance, development and simulations determined by individualised plans</p> <p>National and International</p> <p>FISU Games</p> <p>Olympic Winter Games</p>	<p>Skater's Equipment</p>	<p>Cut resistant socks</p> <p>Readiness for new technologies</p>
<p>Event Results</p>	<p>Awards: Team & Individual, Single Event & Season i.e. Circuit Champions</p> <p>Records: CDN & World</p> <p>Rankings: National & International</p>	<p>Preparation Guidelines</p>	<p>Sport participation: 1 + cross training in ST</p> <p>Training season: Individualised</p> <p>Sessions/week: Individualised</p> <p>Periodization: Individualised</p>
<p>Event Format</p>	<p>Long Track Events</p> <ul style="list-style-type: none"> · ISU Distances: 100m, 500m, 1000m, 1500m, 3000m, 5000m, 10 000m · Team pursuit (Time Trial or Elimination) 		
<p>Facilities</p>	<p>400m tracks</p> <p>Indoor tracks for World Championship Team Selection Events</p>		



STAGE: Learning and Training to Win (Short Track)

Female & Male 21+

Preparation Objectives:

- ✓ Maximizing the engine and speed skating specific skills and fitness.
- ✓ Refine technique and racing skills so athletes are as fast as they can be.
- ✓ Learn to optimize physical and mental recovery, optimize equipment and lifestyle habits for maximal performance.

Contribution of Competition to Participant Development

- Ultimate demonstration of mastery of speed skating in specific events and discipline.
- Defines the training which each competitor must use to complete.
- Major events define the program; other events serve as preparation events and learning experiences for major events.
- Source of national and sporting pride for participants in all other stages.

Key Recommendations

- Scheduling of events to accommodate key international competitions such as World Cups, World Championships and Olympics.
- Scheduling of events to provide appropriate equivalent experience for skaters not selected for key international competitions.
- National calendar should be set to promote optimal preparation for international events.
- Short track championships and world championship selection events use only boardless mat protection systems.
- Promote events to the ISU which favour SSC athletes or potential athletes.

Other Comments/Implications

- SSC should work to positively influence the international calendar to facilitate optimal preparation.
- Be meaningful for all participants (skaters, spectators, coaches, officials, volunteers, and support staff).
- Recognize volunteerism and the contributions that volunteers make to enable events to take place.
- Competition emphasis based upon individualized plan.
- Re-setting goals for transition to active for life participation.
- Domestic event scheduling should promote opportunities to simulate major events (e.g. Olympics, and World Championships) with regards to time of day of races and time between races.
- Training and competing in this stage is very demanding, therefore at this level skating requires a full time commitment.

Learning to Win (L2W) and Training to Win (T2W) - Short Track

Age: Female & Male 21 +

Overall Objective: Podium Performance

Find Your Edge Objective: Further Maximizing the Engine and Speed Skating Specific Skills and Fitness

<p>Preparation Objectives</p>	<p>Maximizing the engine and speed skating specific skills and fitness</p> <p>Refine technique and racing skills so athletes are as fast as they can be</p> <p>Learn to optimize physical and mental recovery, optimize equipment & lifestyle habits for maximal performance</p>	<p>Windows of Opportunity</p>	<p>All systems fully trainable</p>
		<p>Education</p>	<p>Post-secondary</p> <p>School course load adjusted based on competitive cycle</p>
<p>Event Objective(s)</p>	<p>Achieving podium performances</p> <p>Performance on demand</p>	<p>Competition Format</p>	<p>Length: 2 - 3 days</p> <p>Age class and open format</p> <p>Age Classes: Neo Senior - 2; Senior</p> <p>1 - 2 individual events/days (3-4 rounds/event)</p> <p>Relays (2-3 rounds/competition)</p>
<p>Events (number and level)</p>	<p>8 - 10 competitions per season</p> <p>Performance, Development and Simulations determined by individualised plans</p> <p>National and International</p> <p>FISU Games</p> <p>Olympic Winter Games</p>	<p>Skater's Equipment</p>	<p>Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses</p> <p>Readiness for new technologies</p>
<p>Event Results</p>	<p>Awards: Team & Individual, Single Event & Season i.e. Circuit Champions</p> <p>Records: CDN & World</p> <p>Rankings: National & International</p>	<p>Preparation Guidelines</p>	<p>Sport participation: 1 + cross training in LT</p> <p>Training season: Individualised</p> <p>Sessions/week: Individualised</p> <p>Periodization: Individualised</p>
<p>Event Format</p>	<p>Long Track Events</p> <ul style="list-style-type: none"> · ISU Distances: 500m, 1000m, 1500m, 3000m (WC only) · 3000/5000m Relays) 		
<p>Facilities</p>	<p>111.12m oval</p> <p>100'x200' Rinks</p> <p>Boardless system for World Championship Team Selection Events</p>		



STAGE: Active for Life

Female 14+ Male 15+

The Review Team has not gathered normative data from which to make its recommendation but has instead used common sense, intuition and general knowledge of the participation rates and pent up demand for programs for A4L participants. This section summarises the reflections of the Review Team. Other ideas generated by discussion have been included in Appendix 4 to assist Speed Skating Canada in further defining the program offerings in the Active for Life stage.

Preparation Objectives:

- ✓ Strive for personal excellence.
- ✓ FUN.
- ✓ Health and recreation.
- ✓ On-going contribution to the development of the sport.
- ✓ Broaden sport experience (multi-sport).

Contribution of Competition to Participant Development

- Source of motivation to train and remain physically active.
- Test one's achievement with the support of other competitors.
- Opportunity to demonstrate excellence in: Skating ability, Coaching, Officiating, Event Management etc.
- Opportunity for social interaction with people who share common interests.

Key Recommendations

- Develop a variety of opportunities which promote on-going participation in skating for health and recreation.
- Adopt age categories that allow Masters skaters to skate and be recognized for performances against younger Masters.
- Facilitate the organisation of events which promote community and provide a source of motivation to train and be physically active (i.e. Fun skates).
- Offer events which have a long duration, emphasizing the development/maintenance of the aerobic system.
- Active for Life is a healthy life choice based on health, recreation and contribution to sport.
- Create opportunities to transition to the Active for Life stage through Adolescence and Early Adulthood.
- Provide opportunities for meaningful competition for adolescents and young adults not pursuing high performance sport.
- Active for Life athletes should not be looked upon as different from younger skaters and should be treated with equal respect.
- Active for Life athletes are leaders in the sport community and should be encouraged to lead.
- Develop accelerated coaching and officiating pathways for athletes of significant experience.
- Include the Active for Life stage in competition programs.

Other Comments/Implications

- While Active for Life athletes are often equally interested in winning as their younger counter-parts, they understand that the victory or loss, as the case may be, is not as important as the process and the whole training outcome.
- They are aware of the necessity of respectful relationships built through training and competition.
- Active for Life represents a positive role model for younger athletes and leadership for healthy lifestyle participation.
- Social activities and/or an integral part of events.
- Inclusion in Regional and/or National Age Class Championships.
- Explore the possibility of using events such as fundraisers/benefits activities for charities outside of speed skating.

Active for Life - Long Track and Short Track

Age: Female 14+, Male 15+

Overall Objective: Learn all fundamental movement skills and build overall motor skills.

Preparation Objectives	Health and recreation Keeping the Engine Running FUN Contribute to sport Broaden sport experience (multi-sport)optimize equipment & lifestyle habits for maximal performance	Windows of Trainability	As per stage of development if under 18, otherwise all system trainable
Event Objective(s)	Personal Improvement & Challenge Thrill of racing. Promote physical fitness Social interaction	Competition Format	Ability & Age Class meets Integrated into normal competition & A4L only Length: 0.5 - 3 days Age Classes: ISU JR A, B, C, Neo Senior 1 & 2, Senior, Masters 30+, 35+ etc...
Events (number and level)	As per participant's interest Local, Regional, Provincial, National & International		
Event Results	Awards: For team and individual performance & Participation (I finished) Team Result: Combined relay + individual results Records: By Age Class	Skater's Equipment	Long Blade racing, Clapskates permitted in LT Skin suits Short Track: Helmet, cut resistant gloves, shin guards, knee pads, neck guard, cut resistant socks, safety glasses Long Track Olympic Style: Cut resistant socks
Event Format	Long Track · ISU Distances: 100m, 500m, 1000m, 1500m, 3000m, 5000m · Marathon, Fun Skates etc... (5km, 10km, 25km, 50km) Short Track · 500m, 777m, 1000m, 1500m · 3000m points race · Relays 3000m/5000m)	Preparation Guidelines	As per personal interest Evaluate participant fitness before developing programs Based on yearly training plans adapted to skater interest.
Facilities	Long Track · 333m and 400m tracks · Natural Ice Tracks of all sizes · Canal and Lake Skating Short Track · 111.12m oval		



Coaches and Officials as Expert Volunteers and Professionals

Speed Skating Canada's (SSC) program is described as athlete centered, coach driven and supported by administrators, officials and financial partners. Coaches and officials have the responsibility of direct delivery of programs and events. In the original matrices these two roles were included at each stage of development. The vast majority of coaches and officials are expert volunteers. Each has their own accreditation and education programs. A limited number of coaches are paid professionals. Both coaches and officials are supported by SSC standing committees.

Coaches and officials have the responsibility of direct delivery of programs and events.

The developmental constructs relating to social issues and trends identified a dramatic decline in volunteerism in Canada. In the 'Active for Life' section it was emphasized that expert volunteers are participants who seek training and are certified and assessed as competent for specific roles. The bottom line is that SSC program is dependent on these expert volunteers. To have sustainable and developmentally appropriate programming SSC must carefully consider its coach and official educational programs and recognition strategies. These programs also must follow the developmental constructs and developmentally appropriate program continuums identified in the developmental recommendations. For these reasons these two roles are represented by their own matrices.

Traditionally (nationally and internationally) these roles have been defined in linear hierarchical models. In this model Level 1 has focused on entry/instructional roles and Level 5 has been international championship roles. Every individual begins at Level 1 and gains the knowledge and experience to be promoted to the next level with time, training and experience. Those reaching the international level are at a very high standard of competency. This of course assumes progression through developmental stages which is a linear hierarchical model.

SSC has the opportunity to consider both the coaching and officiating programs cognisant of long term development but should not limit itself to the linear hierarchical model. It raises questions:

- How do the coaching and officiating programs recognize prior learning experience, the experience many potential coaches and officials carry with them?
- How does SSC recognize the experience that former international skaters bring to coaching or officiating?
- Is it necessarily good to have former international skaters start at the 'FUNdamentals' stage of development?
- If a person is very good working with the earlier stages of development, can SSC recognize them as experts at this level?
- How does all of this impact on professional coaches and should elite officials be paid?
- Are there opportunities for certain training and assessments activities to be shared?
- Does prior learning assessment and shared training need to be extended to other volunteers?

While the following matrices do not address these questions they do lay out the appropriate roles, skills and training/certification requirements that relate to the different stages. On the assumption that SSC will be making significant program changes based on the recommendations of the review it is an opportune time to carefully consider both the models and roles of direct program providers: coaches and officials. The matrices should provide a starting point for the Coaching and Officials Development Committees to consider their roles in developmentally appropriate programming and the related training and certification models.

Officials

	Role and skills	Qualifications	Additional Comments
AS	<input type="checkbox"/> No formal officiating		
FUNd	<input type="checkbox"/> Formative evaluation of skills during races (Coaches) <input type="checkbox"/> Directed by the principles of fair play and not the formal rules of speed skating (judgement as to what is reasonable). <input type="checkbox"/> Important educational role with skaters & coaches <input type="checkbox"/> Off-ice duties - time races <input type="checkbox"/> Clerk to coordinate ice access		
L2T	<input type="checkbox"/> Primary entry point for new officials <input type="checkbox"/> Teaching participants fair-play <input type="checkbox"/> Recruiting officials from amongst older skaters and parents and officials from other sports seeking a change of environment <input type="checkbox"/> Introducing Coaches, Parents, Skaters, Volunteers to racing rules & meet procedures		
T2T : Pre-PHV/ PHV	<input type="checkbox"/> Teaching participants fair-play <input type="checkbox"/> Introducing Coaches, Parents, Skaters, Volunteers to racing rules & meet procedures	<input type="checkbox"/> Level II Officials	
T2T : PHV/ Post-PHV	<input type="checkbox"/> Officials learning to run a competition <input type="checkbox"/> Teaching participants fair-play <input type="checkbox"/> Continuing to educate Coaches, Parents, Skaters, Volunteers to racing rules & meet procedures	<input type="checkbox"/> Level II Officials	<input type="checkbox"/> Introducing skaters to officiating with skaters in earlier stages. Assume a role of Participant Leaders in the FUNdamentals Stage.
L2C	<input type="checkbox"/> Teaching skaters and coaches re: Int'l rules <input type="checkbox"/> Monitoring doping control <input type="checkbox"/> Collaborate with coaches to ensure a positive competitive environment	<input type="checkbox"/> Level 3A officials <input type="checkbox"/> ISU International for Selection Events	
T2C	<input type="checkbox"/> Maintaining a fair competitive environment <input type="checkbox"/> Monitoring doping control <input type="checkbox"/> Mentoring of developing officials <input type="checkbox"/> Collaborating with coaches to ensure a positive competitive environment	<input type="checkbox"/> ISU International List Officials (Chief) <input type="checkbox"/> National and International Level	
L2W	<input type="checkbox"/> Maintaining a fair competitive environment <input type="checkbox"/> Monitoring doping control <input type="checkbox"/> Mentoring of developing officials	<input type="checkbox"/> ISU International List Officials (Chief) <input type="checkbox"/> National and International Level	
T2W	<input type="checkbox"/> Maintaining a fair competitive environment <input type="checkbox"/> Monitoring doping control <input type="checkbox"/> Mentoring of developing officials	<input type="checkbox"/> ISU International List Officials (Chief) <input type="checkbox"/> National and International Level	
A4L	<input type="checkbox"/> Maintaining a fair competitive environment <input type="checkbox"/> Ensuring a safe competitive environment	<input type="checkbox"/> Regular Competition Officials	



Coaching

The following table summarises the coaching context to support both the practice and competitive environments. Training and certification recommendations are based on Speed Skating Canada’s Coaching Development Model and utilise the terminology of the new NCCP.

	Role and skills	Training/Certification*	Additional Comments
AS	<ul style="list-style-type: none"> <input type="checkbox"/> Act as lead instructor with assistants <input type="checkbox"/> Teaches participants how to skate <input type="checkbox"/> Create Fun, positive learning environment 	<ul style="list-style-type: none"> <input type="checkbox"/> FUNdamentals Coach <input type="checkbox"/> FUNdamentals Leader 	<ul style="list-style-type: none"> <input type="checkbox"/> Entry point for T2T and L2C skaters to coach – require leadership training and mentorship
FUNd	<ul style="list-style-type: none"> <input type="checkbox"/> Act as lead instructor with assistants <input type="checkbox"/> On-ice during events, serve as on-ice officials <input type="checkbox"/> Leads skaters’ off-ice activities <input type="checkbox"/> Informs parents about nature of competition <input type="checkbox"/> Ability to teach and demonstrate fundamental skating skills in practice 	<ul style="list-style-type: none"> <input type="checkbox"/> FUNdamentals Coach <input type="checkbox"/> Fundamentals Leader 	<ul style="list-style-type: none"> <input type="checkbox"/> Entry point for T2T and L2C skaters to coach – require leadership training and mentorship <input type="checkbox"/> Important to develop and recognise expert skills instructors
L2T	<ul style="list-style-type: none"> <input type="checkbox"/> Leading warm-ups <input type="checkbox"/> Informing parents about nature of competition <input type="checkbox"/> Collaborating with official to ensure a positive competitive environment <input type="checkbox"/> Ability to teach and demonstrate speed skating skills in practice 	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to Competition <input type="checkbox"/> FUNdamentals Coach 	<ul style="list-style-type: none"> <input type="checkbox"/> Entry point for T2T and L2C skaters to coach – require leadership training and mentorship <input type="checkbox"/> Important to develop and recognise expert skills instructors
T2T : Pre-PHV/ PHV	<ul style="list-style-type: none"> <input type="checkbox"/> Showing skaters their competition responsibilities – eg. Warm-up, monitoring race schedules, etc... <input type="checkbox"/> Educating parents <input type="checkbox"/> Collaborating with official to ensure a positive competitive environment 	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to Competition <input type="checkbox"/> Competition Development (in-training) 	
T2T : PHV/ Post-PHV	<ul style="list-style-type: none"> <input type="checkbox"/> Showing skaters their competition responsibilities – eg. Warm-up, monitoring race schedules, etc... <input type="checkbox"/> Educating parents <input type="checkbox"/> Utilizing knowledge of annual planning & periodization to adapt programs to growth and development of individual athletes <input type="checkbox"/> Teaching Race Tactics & management <input type="checkbox"/> Providing direct feedback after races for continuous improvements of skaters and adjustment during the competition <input type="checkbox"/> Collaborating with officials to ensure a positive competitive environment <input type="checkbox"/> Mentoring developing coaches <input type="checkbox"/> Collaborating with more experienced coaches (either National or Provincial) 	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to Competition <input type="checkbox"/> Competition Development 	<ul style="list-style-type: none"> <input type="checkbox"/> Skaters in this stage begin coaching (FUNd & L2T skaters) <input type="checkbox"/> Require training for mentors
L2C	<ul style="list-style-type: none"> <input type="checkbox"/> Implementing planning and periodization of training and competition to match individual objectives <input type="checkbox"/> Teaching race management and tactics <input type="checkbox"/> Providing direct feedback after races for continuous improvements of skaters and adjustment during the competition <input type="checkbox"/> Collaborate with officials to ensure a positive competitive environment <input type="checkbox"/> Managing a team <input type="checkbox"/> Mentoring developing coaches <input type="checkbox"/> Collaborating with more experienced coaches (either National, Regional or Provincial) 	<ul style="list-style-type: none"> <input type="checkbox"/> Competition Development 	<ul style="list-style-type: none"> <input type="checkbox"/> Require training for mentors

	Role and skills	Training/Certification*	Additional Comments
T2C	<ul style="list-style-type: none"> <input type="checkbox"/> Implementing planning and periodization of training and competition to match individual objectives and achieve major peaks <input type="checkbox"/> Managing a Team <input type="checkbox"/> Guide the refinement of technical and competitive skills <input type="checkbox"/> Providing direct feedback after races for continuous improvements of skaters and adjustment during the competition <input type="checkbox"/> Supported by Integrated Support Team (IST) <input type="checkbox"/> Collaborate with officials to ensure a positive competitive environment <input type="checkbox"/> Mentoring of developing coaches <input type="checkbox"/> Collaborating with more experienced coaches (either National, Regional or Provincial) 	<ul style="list-style-type: none"> <input type="checkbox"/> Competition Development <input type="checkbox"/> Competition High Performance 	<ul style="list-style-type: none"> <input type="checkbox"/> Generally employed full-time as a coach <input type="checkbox"/> Require training for mentors
L2W	<ul style="list-style-type: none"> <input type="checkbox"/> Implementing planning and periodization of training and competition to match individual objectives and achieve major peaks <input type="checkbox"/> Guide the refinement of technical and competitive skills <input type="checkbox"/> Mentoring of developing coaches <input type="checkbox"/> Supported by IST Team <input type="checkbox"/> Work in a team environment <input type="checkbox"/> Collaborate with officials to ensure a positive competitive environment <input type="checkbox"/> Leaders for the long term development of speed skating programs 	<ul style="list-style-type: none"> <input type="checkbox"/> Competition High Performance 	<ul style="list-style-type: none"> <input type="checkbox"/> Succession planning required <input type="checkbox"/> Generally employed full-time as a coach <input type="checkbox"/> Require training for mentors <input type="checkbox"/> Coach or IST member prepares athletes for post high performance athlete life
T2W	<ul style="list-style-type: none"> <input type="checkbox"/> Implementing planning and periodization of training and competition to match individual objectives and achieve major peaks <input type="checkbox"/> Guide the refinement of technical and competitive skills <input type="checkbox"/> Mentoring of developing coaches <input type="checkbox"/> Work in a team environment <input type="checkbox"/> Supported by IST Team <input type="checkbox"/> Collaborate with officials to ensure a positive competitive environment <input type="checkbox"/> Leaders for the long term development of speed skating programs 	<ul style="list-style-type: none"> <input type="checkbox"/> Competition High Performance 	<ul style="list-style-type: none"> <input type="checkbox"/> Succession planning required <input type="checkbox"/> Require training for mentors <input type="checkbox"/> Generally employed full-time as a coach <input type="checkbox"/> Coach or IST member prepares athletes for post high performance athlete life
A4L	<ul style="list-style-type: none"> <input type="checkbox"/> Understanding of adult athletes <input type="checkbox"/> Teach fundamental skating skills as well as prepare experienced skaters for competition <input type="checkbox"/> Positive role model and motivator <input type="checkbox"/> Active participants 	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to Competition <input type="checkbox"/> Competition Development 	

* This column denotes the NCCP Certification(s) which correspond to the stage of development as identified by SSC's Coaching Development Model. Coaches may also be completing the training to obtain this level of certification when coaching athletes in this context. It is strongly recommended that on-going mentorship programs be established to support developing coaches.



APPENDIX 1

SPEED SKATING CANADA'S GUIDING PRINCIPLES FOR COMPETITIONS AND EVENTS

Racing on Skates

Speed Skating is racing on skates. Internationally skaters race on sophisticated equipment, on adult size tracks and based on a tradition of always turning left. These rules define competition in Canada but:

- Developmentally is this most appropriate for Canadian children?
- What additional “racing on skates” opportunities might allow participants to experience the thrill of speed on ice while gaining developmental value?
- What role can speed skating play in the wholistic development of all participants, who choose to participate in Speed Skating Canada’s programs?

Competition is central to the speed skating experience, enabling participants to race on skates, at all stages of development. Event/competition experiences offer members many things: for athletes, an opportunity to measure the impact of practice, improvement of skills, and a battle of wits as each uses different tactics; for coaches, an opportunity to evaluate program effectiveness; for volunteers, officials and event organizers, an opportunity to provide a sense of pride and accomplishment, develop personal skills and hone team organisational skills. For all, competition provides an opportunity for social interaction, an incentive to work for further improvement, and an opportunity to gauge one’s improvement against one’s self and others.

Long Term Athlete Development.

Canadian Sport for Life through Long Term Athlete Development¹(LTPAD) is a national program developed to be the basis of planning for sport excellence and the well being of Canadians. The LTPAD is a recent model based on current scientific information available on children and adults. Speed Skating Canada (SSC) and other sports use the LTPAD model to provide appropriate developmental-stage programs. Fundamental to the long-term development of individuals is an event/competition system compatible with and reinforces the objectives and outcomes of each LTPAD developmental stage.

Competition: Servant or Master.

It is natural that coaches, parents and athletes want to win; competition often drives training, dictating the type, volume, intensity and frequency of training. In an individual sport winning and personal best times are the most obvious and often thought of as important benchmarks for success. However, the objectives of each stage of development must also be considered in defining events/competitions and the establishment of benchmarks of success.

The primary objectives of physical and sport literacy², critically important for younger participants and the basic skills and knowledge which form the foundation for long term success, must be considered at least as important as winning. At the early developmental stages, physical and sport literacy goals are more appropriate than winning for long-term development as both a person and as an athlete. If **competition** is to be a **good servant**³ rather than a **poor master**, the nature of the activities in speed skating events and competitions should reflect the appropriate goals for each developmental stage, including reinforcement of social, psychological and physical development objectives. Speed Skating must provide events/competitions appropriate for athletes in each stage of development from the ‘Learning to Train’ through the ‘Training to Win’ stages of development as part of *Canadian Sport for Life*, for lifelong participation in skating from the local to international levels.

1 *Canadian Sport for Life Long Term Athlete Development Resource Paper*, CanadianSport for Life

2 Physical literacy is the development of fundamental movement skills and fundamental sport skills that permit a child to move confidently and with control, in a wide range of physical activity, rhythmic (dance) and sport situations. Physical literacy also includes the ability to “read” what is going on around them in an activity setting and react appropriately to those events.

3 Way Richard and Balyi, Istvan “Competition is a Good Servant but a Poor Master” Canadian Sport for Life <http://www.canadiansportforlife.ca/default.aspx?PageID=1076&LangID=en>

Meaningful Competition¹ implies a chance to succeed and even win but to be successful requires some uncertainty and excitement. Races where skaters are so spread out that they are essentially “racing on their own” do not have the necessary uncertainty and are neither fun nor worthwhile, providing limited challenge and minimal learning. Excitement is based on meeting and challenging uncertainty.

To be “meaningful” within the LTPAD model a competition also has to have clear goals linked to the athlete’s development. The event/competition system should be structured to allow all athletes to compete in “meaningful” races that support their physical, tactical, technical, mental and social development. The appropriate level and type of competition as well as the progression from one level to another is critical to each athlete’s long-term development. The concept of continuous improvement or Kaizen² underlies the progression of races. Kaizen or continuous improvement is drawn from the respected Japanese industrial philosophy.

Where Are We Now?

For many National Sport Organizations, the competition structure has evolved over many years with structure and annual scheduling of most competitions based more on tradition than on sport science or an understanding of athlete development. *“Although 90% of Canadians believe that sport has a positive influence on youth – they also believe that sport is overly-focused on competition to the detriment of promoting key values such as respect, accessibility, fairness, integrity and trust”*³. Speed Skating Canada’s competition structure has evolved in parallel to SSC’s international success and in response to international competitive structures. The success is based on the tremendous efforts of dedicated volunteers working within this international framework and international competition calendar. This may or may not be aligned with the objectives of the stages of development defined in LTPAD.

Where Do We Want To Be?

To achieve the LTPAD stages of development objectives, SSC must continually question what it does. By reviewing speed skating objectively it is possible to retain the best parts of what we do, consider alternatives, and generate new ideas. The LTPAD project has provided National Sport Organisations with a well-documented model to study their sport systems and re-align all aspects of competition into coherent systems supporting the long-term development of all participants – athletes, coaches, officials, administrators and volunteers. By reviewing and, if necessary, adjusting the event/competition system so that it supports principles of LTPAD, speed skating can ensure that skaters will be prepared to perform well in life and in competition, whether at regional, provincial, national or international level, while administrators and volunteers gain heightened satisfaction from participation.

¹ The term meaningful competition is taken from *Rowing Canada’s LTAD Competition Review*, Rowing Canada, p6

² *Canadian Sport for Life Long-Term Athlete Development Resource Paper* Canadian Sport for Life p 34

³ “People and Sport”, SMG, January 2006, p.3



How Do We Get There?

This document is the first step of a process to help Speed Skating Canada not only review its events/competitions but more importantly set a framework for making longer term program decisions. It is intended as a foundational document establishing the principles for determining the potential scope of skating. Once adopted in principle it will be utilized as a framework for reviewing Speed Skating Canada's events/competitions within the stages of development defined by Canadian Sport for Life¹. The Review Team will make recommendations, including potential implications, which will then be forwarded:

1. to the LTPAD Working Group for consideration, then
2. to the appropriate standing committees of Speed Skating Canada to consider recommendations for change, then
3. for consideration by the membership at the AGM.

Why Guiding Principles?

A set of guiding principles based on the Sport for Life's LTPAD model and reflecting SSC's values will be an objective foundation for event/competition recommendations. These recommendations and their rationale will be the starting point for decisions by SSC Board, Standing Committees, Branches and members.

Speed Skate Canada Guiding Principles for Competition

To effectively review the existing event/competition system and propose new opportunities it is essential to have a clear vision of how events/competitions service the mission, vision and values of Speed Skating Canada as well as the long-term athlete development model. Programs must be clearly and coherently linked (training, competition/event, coaching, officiating and membership development) through principles that are the basis of all SSC activity. *The principles apply to all levels and ages of participants but for the younger participants the phrase "children are not miniature adults" must be kept in mind for all of the principles.*

¹ Canadian Sport for Life Long Term Athlete Development Resource Paper Canadian Sport for Life

These guiding principles stipulate that events/competitions should:

1. Reflect Speed Skating Canada's values and True Sport's principles

The purpose of Speed Skating Canada is to organize and coordinate the sport in Canada for the betterment of sport and its members. It is guided by six core values: Sport is an Apprenticeship for Life, Respect for Others, Integrity, Excellence of Effort, Safe, Healthy environment and Voluntarism.¹

Speed Skating Canada is also committed to True Sport which is " ... a national Movement of communities and groups across Canada working to ensure a positive, meaningful and enriching experience for all who participate in sport. The True Sport Movement is based on the belief that good sport can help build lasting strengths in individuals, as well as healthy, vibrant communities and a more socially connected Canada. At the heart of True Sport there are four core values: fairness, excellence, inclusion and fun."²

This principle is included to ensure that the competition and event review stays aligned with the overarching goals of Speed Skating Canada and current Canadian sport trends, in addition to goals identified in the LTPAD model and other related literature.

2. Be a full partner in the Canadian sport delivery/youth development system

Speed skating is only one activity in the mosaic of youth opportunity, all adding value to Canadian society. With its partner organizations, speed skating emphasizes fun and healthy living. Partner organizations include many non-sport activities such as the arts and various clubs, all working for positive youth development. Speed skating coaches, officials and administrators are not just technicians providing skating programs, but role models projecting and promoting positive human values. Through speed skating they promote sport and life skills transferable to other sports and life activities.

Factors that could be considered include learning to skate programs, length of season, unstructured play, other sports, and multi sport activities. This list does not define this principle but illustrates some of the issues for speed skating to consider in this partnership.

3. Adjust to change in society

For the sport to succeed, grow, and achieve Speed Skating Canada's stated purposes and values it must adjust to changes in society. Traditionally these changes have been reactive but a review of the structure of events and competition is an opportunity to be proactive. Examples of these factors include social changes such as family, human resources including the roles of volunteers and professional staff, the development of virtual communities (social networking), travel costs, carbon footprint and issues such as the preference for certain ages to participate in team events.

¹ From Speed Skating Canada Web page < www.speedskating.ca >

² From True Sport web page < www.truesportpur.ca >



4. Provide a pathway towards personal and sporting excellence for all participants

The pursuit of excellence, most often defined as winning or medalling, has to be considered in the holistic context of having fun and meeting the objectives related to each stage of development. Today, competition is the very core of speed skating and events/competitions are often a primary means of attracting participants. Consideration of alternative events or types of competition is critical to expanding the attractiveness of the sport and pathways to excellence.

Because of Speed Skate Canada's Olympic success, speed skating is an elite sport in Canada and should continue to provide athletes with the opportunity to become the very best that they can be. The event/competition review must consider the relationship between the LTPAD stages of development to the related age-appropriate events and other public displays of speed skating excellence such as national championships, team trials and international events. Optimal development and elite competition are not mutually exclusive but are intertwined and essential for Speed Skating Canada to meet its purpose and satisfy organization values.

5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers)

The event/competition system should be structured to allow all athletes to compete in "meaningful"¹ races that support physical, tactical, technical, mental and social development. Each competitor must have a reasonable chance of succeeding either by winning or by meeting other challenges. Competition structures have evolved over many years. The structure and timing of many competitions are based more on tradition than on sport science and an understanding of athlete development. Traditionally speed skating events, especially championships, have been structured into chronological age categories. Meaningful events/competitions also must consider ideal ages and categories for learning to skate, competition age categories for males and females and season length.

The LTPAD model has provided National Sport Organisations with an opportunity to reconsider their sport's basic framework. This review is intended to consider what event/competition does to support participant long-term development – athletes, coaches, officials, event administrators, administrators and volunteers. Potentially, adjustments to the event/competition system so it supports principles of LTPAD, may well produce more skaters better prepared to perform well in life and in competition, whether at club, branch, regional, national or international levels.

The definition of "meaningful" will likely be different for stages of development, regions and even individuals. To be meaningful a competition must have defined purpose with stated goals.

6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds

Every person who wants to race on skates should have the opportunity to do so in a safe and affordable manner. The issue of physical safety is one of Speed Skating Canada's values. But safety also implies free from harassment or interference with the individual. Fun, while covered under other principles, is the root of speed skating's success. Enhanced by its elite classification, speed skating can take positive strides to enhance accessibility. *Developing Physical Literacy*² for every child identifies several underrepresented groups including: aboriginal youth, youth with a disability, girls (especially those from ethnic groups that have not traditionally valued physical activity), and disadvantaged inner-city youth. There are a great many issues regarding accessibility and many of these factors are outside Speed Skating Canada's control but others can be addressed. Some within speed skating's control include economics, personal and social perceptions, type of skates and uniforms. These are included as examples of issues that can be considered to make speed skating as accessible as possible. The concept of attractive relates to how the speed skating and the events and competitions are perceived by Canadians. If they are perceived as attractive the sport will grow.

The basic premise is that the more accessible the events and competitions are the more skaters will participate.

¹ The term meaningful competition is taken from *Rowing Canada's LTAD Competition Review*, Rowing Canada, p6. It is described on page 57.

² *Developing Physical Literacy, A Guide For Parents Of Children Ages 0 to 12* Canadian Sport Centre, 2008 p28

7. Utilize the basic characteristics identified in the LTPAD and other literature to define the event/competition objectives for each stage of development

Acceptance of the LTPAD model implies the objectives for each stage¹ with the data in three domains, physical, psychological and motor skill, defining the program. The question is: "Does the program define the events/competitions or do the events/competitions define the program?" The LTPAD is relatively new initiative and while programs likely adhere to many of the principles they may not have had time to adapt to others. Program and events/competitions are naturally intertwined. Therefore the review has to make recommendations based on this principle. Issues to be considered include program objectives such as fundamental movement skills, physical literacy, as well as the physical, psychological and motor domains.

8. Utilize the basic characteristics identified in the LTPAD and other literature in the selection of event/competition activities and skills for each stage of development

An overriding principle in event activity selection should be the relationship between program objectives and the types of activities offered to the participants of each stage. The activities and skills included in events/competitions selected should highlight the goals and objectives of the stage. The most obvious reason is to focus attention on the developmental stage objectives. Having events related to the stage objectives should help parents to directly see the benefits of the programs, help teacher/coaches to maintain focus on these goals and finally and perhaps most importantly it should provide both motivation and direct reinforcement to the participants. Once the overarching goals of a program and the developmentally appropriate tasks are identified, events, including competitions for each stage of development, must be developmentally appropriate.

An example of another factor is that many sports have made adjustments to scale equipment to the physical size of children (**children are not little adults**). Balls were made smaller and lighter, rackets smaller, distance between bases adjusted, fields and goals smaller, children play hockey on half rather than full ice surfaces. The rationale for changing was to make the field of play and equipment more specific to the size of the children so they would have relatively similar tasks and the similar probability for success as adults. If the size of the track was adjusted to the size of the athlete would the skater have the same number of stride rate and patterns similar to adults?

High performance programs require larger international ice surfaces but are these surfaces necessary at youth level? Are there other alternatives to improve existing rink safety and reduce the need for large ice surfaces at younger ages? Does speed skating eliminate smaller facilities because of high performance requirements? Is the challenge not to find safe means to allow every Canadian access to this opportunity anywhere there is ice?

9. Success defined and celebrated in relation to the goals and objectives of the stage of all participants.

Skater preparation for events should be related to stage of development, including elements such as skills, agility, tactics, etc. Coaches and parents need to understand that speed skating is more than winning or the times achieved. The reward system must consider all participants and reward the implementation principles

But we need to be careful not to leave behind what our sport is all about: racing on skates. With that in mind, this review acknowledges that the sport is about both racing to win and measuring individual improvement and being rewarded for personal achievement while keeping young skaters in touch with older club and national and international skater. Success should not be achieved at the expense of participation.

¹ Defined in *Canadian Sport for Life*, p 37-44 and Speed Skating Canada's Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan. P17-40



APPENDIX 2 DEVELOPMENTAL CONSTRUCTS

TABLE OF CONTENTS

1. Introduction	63
2. Overview of the Developmental Constructs	64
3. Physical Anatomical	65
4. Physiological	66
4.1 Window of Trainability	67
5. Neurological	67
6. Cognitive	68
6.1 Rules Comprehension	
7. Psychological	69
7.1 Self-Concept and Self-Esteem	
8. Social Affiliation and Play Stages	70
9. Periodization and Competition Calendar	71
9.1 The Role of Competition	
10. Age Issues	74
10.1 Relative, Biological and Chronological Age	74
10.2 Gender Differences and Age	76
10.3 ISU Ages and Distances	76
11. Facilities and Equipment	77
11.1 Skates	77
11.2 Ice Surfaces and Track Sizes	77
12. Social Issues and Trends	79
12.1 Volunteers	79
12.2 Family	79
12.3 Accessibility	80
12.4 Sustainable Environment and Carbon Foot Print	80
12.5 SSC Demographics	80

1. Introduction

To effectively review the existing event/competition system and propose new opportunities it is essential to have a clear vision of how events and competitions¹ service the mission, vision and values of Speed Skating Canada (SSC) as well as the long-term athlete, participant development model (LTPAD). The LTPAD is a model developed by Canadian growth and development experts. The conceptual base for the model is summarized in appendices in *Find Your Edge* and *Canadian Sport for Life Resource Paper*. To facilitate the interpretation of this material the information has been partitioned into the following “Constructs”:

- Physical/Anatomical
- Physiological
- Neurological
- Cognitive
- Psychological (self-concept and self-esteem)
- Social Affiliation and Play Stages
- Periodization and Competition Calendar
- Age Issues
- Facilities and Equipment
- Social Issues and Trends

The “Constructs” are pillars providing the foundational rationale for a holistic program at every stage. They are primarily based on developmental growth literature and theory. The “Constructs” were reviewed by individuals with both an academic and a sport background for validity. Assuming validity, they should stand until growth and development research provides better evidence. The last topic (Social Issues and Trends) is not based on growth and development material but addresses critical issues to keep in mind when considering the structure of speed skating in Canada. The vast majority of this document is based on LTPAD published material² but where necessary additional research was completed and referenced.

It is important to benchmark the objectives for each LTPAD developmental stage. These are slightly different in the *Canadian Sport for Life Resource Paper* and *Find Your Edge* documents. By including both the stages are better defined, therefore both sets of objectives are included in Table A. Table B links these stages of development to the 2008 SSC age categories.

The “Constructs” are pillars providing the foundational rationale for a holistic program at every stage. They are primarily based on developmental growth literature and theory.

Table C is a summary of the number of SSC active competitors in three general stages: ‘FUNdamentals’, ‘Training’ and ‘Competition’ known as the 70 20 10 demographics. 70% of SSC competitors are in the pre-puberty age classes (‘FUNdamentals’) while 20 % are in junior and juvenile ages (‘Training Stages’) and only 10% are in older ages (‘Competition Stages’) with 1% on SSC national and development teams. While the elite programs are important, the developmental and demographic perspectives were emphasized for stages up to ‘Learning to Compete’. The LTPAD will help Speed Skating Canada continue to offer the very best programs for the development of all the members.

¹ It is necessary to develop definitions of terms that have been used interchangeably in society. The following are operational definitions used in this document:

Event is a planned and organized occasion (e.g. races and/or skill tests and/or fun activities)

Competition is an event in which a number of races are contested.

Race is a contest between two or more people seeking to do the same thing, or to finish first.

Skill test is an opportunity to demonstrate how much you know or how well you are able to do a skill.

² From both the Canadian Sport Centres *Canadian Sport for Life Long-Term Athlete Development Resource Paper V2* and Speed Skating Canada’s *Find Your Edge Speed Skating Canada’s Long-Term Athlete Development Plan*.



2. Overview of The Developmental Constructs

People mature at different rates in different domains. For each domain, there are general trends or stages which are experienced in sequential order. Within an individual, rate of growth/development/maturation differs between domains. The person who experiences an early growth spurt may be a late developer in psychological or social domains. There are also large individual differences within each domain. For example, the growth spurt can start at a very early or a very late chronological age. Even the length of the growth spurt can vary between individuals. There are of course other reasons for individual differences such as genetic endowment and opportunity.

The goal of this section is to paint trends within specific domains but with a broad brush. It is important to note that these are generalizations related to chronological age. There are children who have certain capacities at a much earlier or much later age however the chronological age is a benchmark linking the majority of children to the stage of development. The diagram below illustrates the general developmental trends over three domains, general growth, genital maturation and neural maturity. Early and late maturers are the exceptions and not the basis to define a general program. The reader will be referred to tables which are abridged synopsis of other sources referenced in the footnotes. The general picture will lead to “Constructs” or summary statements. The “Constructs” summarize the trends in each domain. These trends can guide SSC in selecting events/competition structures that support the LTPAD model.

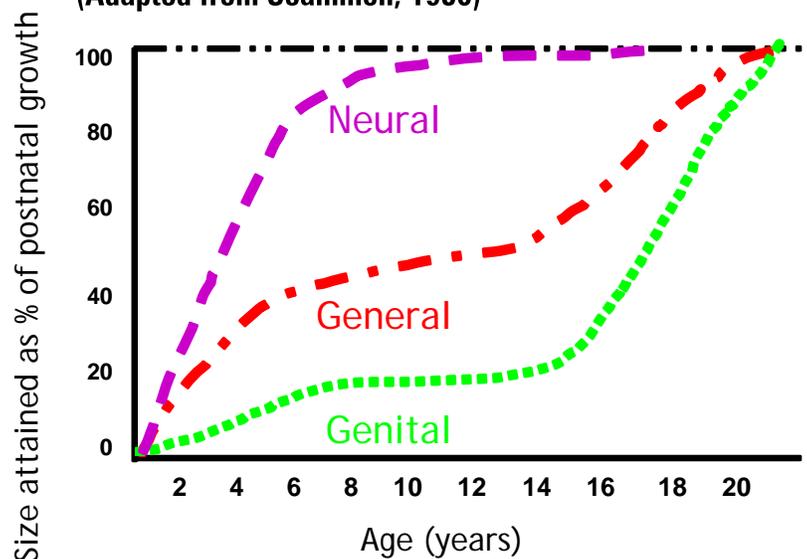
These trends apply to the majority of the athletes at each age therefore are useful to identify the types of activities, races and distances for each chronological age. However for optimal individual development a more individualized approach is recommended for training programs. For example the physiological windows of trainability (see below) are specifically linked to puberty and are best benchmarked to peak height velocity (PHV). Therefore PHV provides important guidance for developing physical training programs but cannot be the sole determinant of the best program for an individual. Other domains or constructs must be considered in a holistic approach to program development².

The primary source of material for this section is Appendix 1 of *Canadian Sport For Life*. The Appendix is titled “Physical Mental and Cognitive, and Emotional Developmental Characteristics” and is described: “The following Moving Scale provides a guideline on how to utilize the Physical, Mental, Cognitive and Emotional Development Characteristics tables pointing, out the over laps at various stages of LTAD”. While the table is a good source of information there are two concerns.

The first concern is by grouping so many developmental characteristic into one category the developmental continuum within a characteristic is difficult to trace. To address this Tables (D, E, L, M, N, O and P) were developed that essentially focus on specific characteristics. Where the trends were incomplete other data was accessed and reported in other tables (N, Q and R).

The second issue with the appendix is the wide range and overlap of age ranges (for males late childhood to 6 to 14, early puberty 9 to 16, late puberty 14 to 18 and early adulthood 16 to 22. The overlap is similar for females. This reflects the real issue of individual rate of development in every domain. We are familiar with this regarding physical growth where the development can be benchmarked against peak height velocity. The later is relatively easy to measure and even predict. The mental, cognitive and emotional characteristics also have wide individual differences and these are not as readily measured. The tables and the resulting constructs were used to paint a developmental picture across all the characteristics. The issue of individualized rates of development for each characteristic is real and must be considered. The reader and SSC must be cautious in interpreting this information and make sure every developmental domain is must be considered not just the more obvious physical growth.

Different patterns of system growth during childhood (Adapted from Scammon, 1930)



1 Figure Extracted From: Bayli & Way, *The Role of Monitoring Growth in Long Term Athlete Development, A Supplement to: Canadian Sport for Life* (2009)

2 For a complete discussion of this please see: Bayli & Way, *The Role of Monitoring Growth in Long Term Athlete Development, A Supplement to: Canadian Sport for Life* (2009)

3. Physical Anatomical

Growth is relatively orderly and consistent during the late childhood stage of development (Table D). Pre-puberty children have only modest gender differences. However at the start of puberty, most children have a very significant growth spurt, which leads to obvious physical changes. These are usually accompanied by changes in secondary sexual characteristics. Individual differences are dramatic, because some children start this growth spurt at an early age (early maturers) and others much later (late maturers). Post puberty the growth stabilizes and within each gender individual differences are not as dramatic as during the growth spurt. Post-puberty adolescents have significant difference between males and female with males being larger and stronger.

In speed skating the tradition has been to race counter clockwise, therefore most of the preparation and almost all of the racing has been turning left. No one is sure why this direction, but it has always been done that way. Turning only one direction contradicts the concept of physical literacy. There is also an anatomical risk of muscular imbalance. With respect to speed skating skill there is anecdotal evidence that skaters have a much more difficult time learning to get on the outside edge on a straightaway. Based on the principle that practice and training are heavily influenced by the types of events, it is important that at least during the 'FUNdamentals', 'Learning to Train' and 'Training to Train' stages of development there be a significant amount of clockwise racing in events and competitions. Such racing will require attention to safety factors such as the padding system.

In speed skating the tradition has been to race counter clockwise, therefore most of the preparation and almost all of the racing has been turning left.

Physical Anatomical Developmental Constructs

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
 - Puberty is a period of rapid growth during which the length of limbs may grow rapidly, therefore severely challenging skills development.
 - Puberty is a time of maximal individual differences within a chronological age.
 - During puberty there is a need to minimize the chronological age differences between individuals.
 - Post puberty the majority of the growth is complete.
 - Post puberty stages of development require gender specific races/competitions.
 - 'FUNdamentals', 'Learning to Train' and 'Training to Train' stages of development should include a significant amount of clockwise racing in addition to the traditional clockwise direction.
-



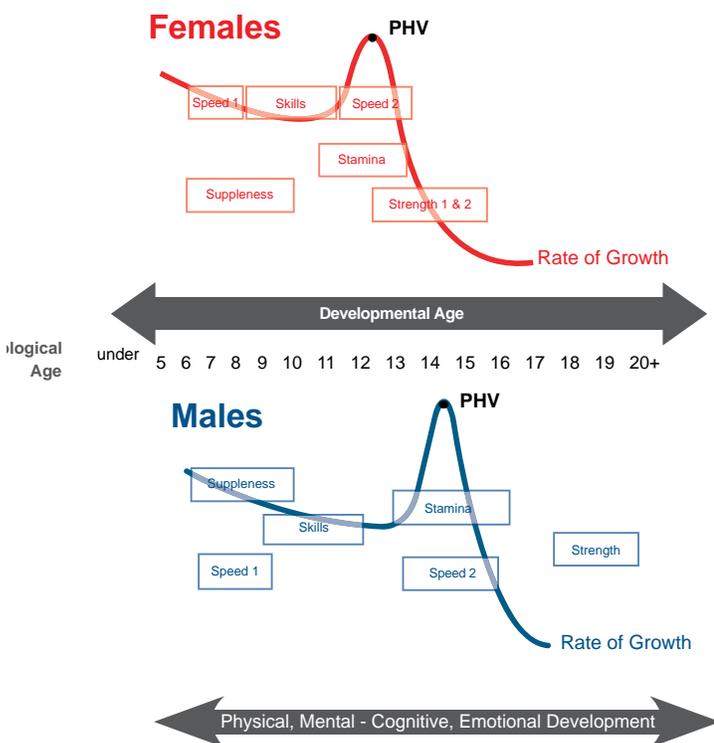
4. Physiological

4.1 Windows of Trainability: Specific physiological systems mature differently and at different ages (Table E). Different systems adapt to specific training at different ages. These are labelled “windows of trainability”. These windows are illustrated below and listed in Tables F and G.

“Trainability refers to faster adaptation to stimuli and the genetic endowment of skaters as they respond individually to specific stimuli and adapt to it accordingly. Trainability has been defined as the responsiveness of developing individuals to the training stimulus at different stages of growth and maturation.

A Window of Trainability refers to the point in the development of a specific capacity when training has an optimal effect. Other factors are readiness and critical periods of trainability during growth and development of young skaters, where the stimulus must be timed to achieve optimal adaptation with regard to motor skills, muscular, and/or aerobic power. Attention to Windows of Trainability will be a significant factor in the continued success of Speed Skating Canada.”

The next figure illustrates the Windows of Trainability²



SSC Competition Review Principle 8 states: “Utilize the basic characteristics identified in the LTAD and other literature in the selection of event/competition activities and skills for each stage of development”. While principle 9 states “Success defined and celebrated in relation to the goals and objectives of the stage of all participants”. For SSC events and specifically distances to be LTPAD appropriate they must consider these principles. Tables H, I, J and K used Tables F and G to develop a tables to provide guidance regarding appropriate distance/skill test time periods for each age. It is possible that a case could be made for other distances based on other developmental data.

In these tables the term “emphasize” means that because it is a window of trainability the time periods/distances for that age should be included in competitions and skill tests while the term “avoid” means that from a physiological perspective these times frames/distances should not be raced. These designations are to provide guidance for competitive racing which assume maximum effort for the time period. It is assumed that the distances selected will influence training programs. Many of the “avoid” categories were based on the time period being inappropriate at maximal effort. These time periods may be appropriate in training, but at sub-maximal effort.

records and distances raced in each age category were included in the tables. The time periods to emphasize were identified by green, those to avoid in red and others left in white. These tables alone justify the reconsideration of distances raced at each stage/age class. It is important to reiterate that these are based almost exclusively on physiological considerations and therefore these are labelled as guidelines. It is important to be clear that the essence of speed skating and other developmental domains must also be considered as well as the windows of trainability when selecting appropriate distances (specific stage time period/distances will be discussed in the developmental recommendations section of the report).

Physiological Developmental Construct

- Windows of trainability should be a major determinant of SSC competition and event activities for each developmental stage.

1 Find Your Edge Speed Skating Canada’s Long Term Athlete Development Plan, Speed Skating Canada, p12.

2 Find Your Edge Speed Skating Canada’s Long Term Athlete Development Plan, Speed Skating Canada, p12.

5. Neurological

The neurological system is almost fully developed by the start of puberty. In late childhood muscular strength is a function of neurological maturation (Table L). This affects systems such as muscles where large muscle groups are neurologically mature before smaller muscle groups. By early puberty the nervous system is essentially mature. This has implications for agility, balance, co-ordination and flexibility which develop rapidly at the end of the late childhood stage and are fully trainable during early puberty. This neurological maturation is also reflected in the windows of trainability (Tables F and G).

The issues of readiness and physical literacy are also related to neurological maturation.

The issues of readiness and physical literacy are also related to neurological maturation. *Sport for Life* has published a special supplement on physical literacy¹. That document defines physical literacy as

“ . . . the development of fundamental movements skills and fundamental sport skills that permit a child to move confidently and with control in a wide range of physical activity, rhythmic (dance) and sport situations. Physical literacy also includes the ability to ‘read’ what is going on around them in an activity setting and react appropriately to those events.”²

To address physical literacy events, races and activities should emphasise general sport skills as well as speed skating skills.

Neurological Developmental Constructs

- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
 - The neurological system is almost fully developed when the child starts puberty.
 - Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.
 - Precision in skills can be achieved due to the relatively advanced neurological development
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¹ *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Sport Centers, 2008.

² *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Sport Centers, 2008, p5.



6. Cognitive

Attention span, language skills and reasoning ability develop during late childhood (Tables M and N). During early puberty children have increased reasoning. They are capable and willing to take on more responsibility for their own learning. Because participants are developing their self-concept at this age, they need positive feedback and reinforcement. As participants get older they assume more responsibility for their learning.

Piaget¹ identified four cognitive developmental stages: sensorimotor (birth to 2 years, preoperational (2 to 7 years), concrete operations (7 to 11 years) and formal operations (11 years and older). During the preoperational stage the child is likely to centre on only one dimension of an event and ignore other important details, at the concrete operational stage the child cognitive is only capable of focusing on two characteristics at a time and it is during the formal operations stage they can handle many possibilities for a given situation.

During the preoperational stage the child is likely to centre on only one dimension of an event and ignore other important details

Cognitive Developmental Constructs

- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Children's ability to focus on dynamic issues is limited until they reach late puberty
- Competition requires ability to analyse performance. Until early puberty, competitions should be managed so children are able to analyse their success and failure.
- The transition from 'Learning to Train to Training to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not

6.1 Rules Comprehension:

Understanding rules and interpreting rules requires both knowledge and reasoning (Tables M and N). During late childhood children have limited reasoning ability. Children at this age have a strong sense of right and wrong and in this stage of development children tend to see things as black and white. In the 9 to 12 ages children tend to see actions and motives objectively with a growing understanding of the principles behind rules. However they are ego-centric and rigidly apply the rules.

It is only during late puberty that there is a complete understanding and acceptance of the rules, regulations and structures.

It is only during late puberty that there is a complete understanding and acceptance of the rules, regulations and structures. Even at this age, rules are seen in simplistic terms and must be clear and well defined. During late puberty children start to completely understand and accept rules regulations and structure. While the age boundaries are slightly different Piaget² defined this as Concrete Operational Stage (7-11 years) and Formal Operational Stage (11 years and beyond).

Cognitive Developmental Construct (rules comprehension)

- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.

1 From online *Encyclopaedia of Educational Technology* from <<http://coe.sdsu.edu/eet/Articles/piaget/imdex.htm>>

2 From online *Encyclopaedia of Educational Technology* from <<http://coe.sdsu.edu/eet/Articles/piaget/imdex.htm>>

7. Psychological

7.1 Self-Concept and Self-Esteem:

"Self-Esteem is all about how much people value themselves, the pride they feel in themselves, and how worthwhile they feel. Self-esteem is important because feeling good about yourself can affect how you act. A person who has high self-esteem will make friends more easily, is more in control of his or her behaviour, and will enjoy life more. Body image show is how a person feels about his or her appearance. For many people, especially people in their early teens, body image can be linked to self-esteem. That's because as kids develop into teens, they care more about how others see them¹."

"As an extension of the body, clothing can effect body image perception and functions to strengthen or weaken the body-image boundary. Clothing acts as a second skin in establishing the physical boundaries of self.²"

Children are developing their self-esteem during late childhood (Tables N and O).

During early puberty with all the physical bodily changes young people are concerned about body image and clothes as part of their development of self-esteem. They are involved in a new form of ego-centric thought. It is only during late adolescence that children start to self-actualize with self-expression being important.

During early puberty with all the physical bodily changes young people are concerned about body image and clothes as part of their development of self-esteem.

Self Concept and Self Esteem Developmental Constructs

- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
 - Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
 - Children start to self-actualize with self-expression being important during late adolescence.
 - Body image, self-esteem and clothing are interlinked.
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1 From <http://kidshealth.org/teen/your_mind/body_image/body_image.html>

2 Using Clothing Choices and Body Image to Enhance Self-Esteem, *Journal of Extension*, 32-2, 1994



8. Social Affiliation and Play Stages

Pre-school children's primary affiliation is with their parents and immediate family (Tables N, O, P and Q). When children start school they begin to develop some independence from family and start to affiliate with other adults such as coaches and teachers as well as their friends. This is the beginning of the process of developing independence from family. By ages 9 to 11 the independence from family is stronger. Peers are much more important and healthy friendships become part of each child's social development. At this age social interaction between boys and girls starts to become important. By the teenage years they tend to make their own choices about friends, sports and school, however peer pressure often leads to conflicting loyalties. At this age tensions often arise between adults and adolescents. They become more independent, developing their own personalities and interests. At this age social interaction between males and female is quite important. By early adulthood (15 years and older) they have the capacity for self-actualization and there is a need to be self-directed and independent (Table P). During the teenage years individuals start to make choices about school and other longer term issues such as careers that have to be balanced with sport.

As children physically grow and mature, they go through social play developmental levels. The levels are parallel play, associative play, cooperative play to low organized games. It is not until they are 8 years old that they are socially ready to participate in individual and dual sports, relays and lead up games. At the age of 10 they move on to team sports (Table R).

By puberty much more happening than the obvious physical growth. There are social affiliation issues as children are influenced by peers as much or more than adults. In a study of UK Athletics¹ (track and field) it was concluded that as the child's affiliations mature from parents and adults to peers, young people are often more comfortable with the team rather than the individual sporting environment.

When children start school they begin to develop some independence from family and start to affiliate with other adults such as coaches and teachers as well as their friends.

Social Affiliation and Play Stage Developmental Constructs

- For preschool children, primary affiliation is with parents and this gradually changes to significant others and peers by the teenage years.
 - At 10 years of age children reach a stage where team sports are important.
 - At 12 years of age children start to have individualized leisure preferences.
 - Sport needs to offer a strong social environment during all stages of development.
 - The social environment is especially important during the early teenage years.
 - By early adulthood (15 years and older) they have the capacity for self-actualization.
 - By early adulthood (15 years and older), there is also a need to be self-directed and independent.
 - By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balance with sport.
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¹ Changing Athletics Competition, UK: Athletics,

9. Periodization and Competition Calendar

Competition has been the primary focus and the very strength of speed skating in Canada. It is the “raison d’être” for speed skating. SSC has developed one of the most successful international speed skating programs in the world and our national teams have made speed skating a premier Canadian winter sport. When SSC considers the implications of the LTPAD for the holistic development of the members, the role of competition must be considered at each stage of development to make sure that competition meets the objectives for that stage of development. Implied in this statement is that competition, while of value in and of itself, can have a variety of positive and negative effects on an individual’s development. However as SSC considers the holistic development of each member the role of competition has to also consider other factors such as education and other lifestyle factors. While the focus of this section is on periodization and the competition calendar, the role of speed skating competition must be considered as a baseline for these recommendations.

9.1 The Role of Competition

If competition is a test or a form of evaluation then terms used in educational evaluation theory may be useful in considering the role of competition in long term athlete development: “*Summative evaluation is a method of judging the worth of a program at the end of the program activities. The focus is on the outcome.*” and “*Formative evaluation is a method of judging the worth of a program while the program activities are forming or happening. Formative evaluation focuses on the process.*”¹ Formative evaluation is similar to ‘Competition Training’ when competition is used as a part of training process. Results would only be used within the context of a program and never for ranking or selection. This is not true for many of the SSC competitions (e.g. in Long Track - six ranking competitions and two team trials). In ‘Actual Competition’ the results are summative for selection or to declare champions. This applies to national team rankings, team national team selection and many branch selection policies.

If one accepts the formative/summative distinction as two potential roles of competition, the issue of how the results are interpreted and used becomes a critical consideration. For example times such as personal bests could have a formative and reinforcing value. However, if times are used for selection to a national championship, or to set records the times have a summative function. If the objective of a stage is to develop physical literacy and speed skating skills, these factors should be the primary basis for recognition. In speed skating performance as measured by time is important but only within the context of the stage of development objectives.

To facilitate planning, three definitions of competition are proposed: performance competitions, developmental competitions and simulation competitions.

Performance Competition is allied to summative evaluation where the outcome is the focus. This would include all competitions that lead to selection to a team, funding, ranking and major championships. These competitions would be important points, perhaps even the goal, in an athlete’s periodization plan.

Developmental Competition is allied with formative evaluation which focuses on the process, physical development and learning. These could be the competition objectives when an athlete participates in a formal competition but the results are used to analyse the skater’s development. Specific objectives could be to test fitness, execute skill in competition, try out racing strategies etc.

Simulation Competition would be done in controlled situations within training and practice or in situations such as club handicap racing or informal Saturday morning racing. These would not be sanctioned in any way and for the most part managed by coaches. These would also focus on the process of developing and therefore be formative.

Each stage of development has clearly enunciated objectives (Table A) and the role of competition, amount of competition and the priority of competition must match the objectives which are clearly enunciated for each stage (Table A).

Role of Competition Developmental Constructs

- Competition can be categorized into three types: “Performance Competitions”, “Developmental Competitions” and “Simulation Competitions” based on the objectives for the competition and how the competition results are used.
 - There must clear enunciated objectives for each competition related to the relevant stage of development objectives.
 - The way competition results are used must be considered in an athlete’s long term development plan
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1 <http://www.sjsu.edu/depts/it/tcdpdf/evaluation.pdf>



9.2 Periodization

Competitions are part of the periodization process and is usually the focal point for an annual plan.

*"Periodization sequences the training components into weeks, days and sessions. Periodization is situation specific depending on the priorities and time available to bring about the required training and competition improvement. Periodization organizes and manipulates the aspects of modality, volume, intensity and frequency of training through long term (multi-year and short term (annual) training, competition, and recovery programs to achieve peak performances when required. A critical aspect of periodization is planning a competition calendar. During the early stages of development ('Active Start' to 'Learning to Compete') developing physical capacities take precedence over competition. Throughout the later stages ('Training to Compete' 'Training to Win') the ability to compete becomes the focus."*¹

The document goes on to make several statements:

- i. *"Optimal sport specific competition ratios are required for all stages of LTAD.*
- ii. *Level and length of the competitive season should be aligned with the changing needs of the developmental skater progressing through LTAD.*
- iii. *Over-competition and under-training at the 'Learning to Training' and 'Training to Train' stages result in a lack of basic skills and fitness.*
- iv. *The appropriate level of competition is critical to the technical, tactical, and mental development at all stages.*
- v. *Specific strategies will need to be analyzed and implemented by the provinces and regions across the country, as strengths and weaknesses will vary considerably.*
- vi. *The current system of competition is based on tradition. It should be planned to enhance optimal training, performance and development of the skater depending upon their LTAD stage.*
- vii. *Competitions in Canada must be created and scheduled considering strategic planning and with due regard for the optimal performance of an athlete and the tapering and peaking requirements.*
- viii. *While international and national calendars are usually well integrated, a systematic competition and training review needs to be undertaken, with regard to our club and provincial level skaters.*
- ix. *Specifically, we need to look at the integration of both Long and Short Track training and competition."*

The amount of racing at each stage is a crucial issue. The SSC *Find Your Edge* document states: *Over-competition and under-training at the 'Learning to Training' and 'Training to Train' stages result in a lack of basic skills and fitness.* This statement is based on team sport data and not an individual sport like speed skating. The question of how much racing should be targeted for each stage of development has to be addressed by speed skating. It also related to the previous section regarding "What is the purpose of racing at each stage". The amount of competition and the competition/training ratio must be considered in light of the developmental stage objectives.

The *Canadian Sport for Life Resource Paper* and the *Find Your Edge* documents have specific information on periodization, training/competition ratios, and number of competitions per year which is summarized in Table S. Percentage competition includes competition specific training which makes it very difficult to interpret this ratio. To address this issue three categories are proposed: 'Developmental Training', 'Competition Training' and 'Competition'. Table T is an attempt to operationally define these as percentages for each stage. The 'Competition', 'Competition Training' and the 'Developmental Training' are based on calculations using the data available in the *Canadian Sport for Life Resource Paper* and the *Find Your Edge* documents. These numbers are guidelines to help the team and SSC members determine the appropriate amount of competition at each stage of development.

A distinction is made between long-term or 'Developmental Training' and 'Competition Training'. Racing can be a planned part of 'Competition Training'. There can be traditional training the day of competition with race(s) as part of that training. Races can be part of the training for competition as tests of strategies and mental preparation (including rest for optimal performance).

At the 'Learning and Training to Win' stages of development the ratio would be very individual. For example, in an Olympic year athletes goals are likely for the current year and short term (making the Olympic Team, winning or an Olympic medal). Longer term development is likely secondary. However, in the same year for other athletes long term development for the next Olympic cycle might be the goal. These are full time athletes and SSC has paid professionals who are responsible for these plans.

¹ *Find Your Edge Speed Skating Canada's Long-term Athlete Development Plan, Speed Skating Canada, p14-15*

At the 'Learning and Training to Compete' stages of development there are similar issues. In the last two years as a junior, World Juniors might be the primary goal or perhaps Canada Games. The issue of concern here is the how ranking and selection competitions and international competitions fit with longer term development. The challenge will be to distinguish between "competition training" and 'competition'.

Skating season length, competition calendar and periodization planning must consider education (school calendars), school sports, complementary sports, etc. in setting the framework for development of the whole individual, not simply physiological training dimensions. The relative importance of these will depend on the athlete's stage of development and experience but is particularly important at the 'Learning and Training to Compete' and the 'Learning to Win' stages. Active rest and recovery are as important as the amount of training, frequency of training and competitions schedule.

For these issues the questions are much more important than the answers.

- What opportunity is speed skating trying to support in the long term development of each athlete?
- What is the purpose of the competition? How are the results interpreted?
- What are the other important factors in the individual athlete's lives?

These are much more important than the number of competitions.

The issue of concern here is the how ranking and selection competitions and international competitions fit with longer term development.

Periodization and Competition Developmental Constructs

- Developing physical literacy and physical capacities take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
 - There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' and 'Learning to Compete' stages of development.
 - The ability to compete becomes the focus for periodization and the competition calendar for the later stages ('Training to Compete' and 'Training to Win').
 - Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
 - Periodization and competition calendar must be taken into consideration in the planning of feature events and competitions.
 - There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the 'Training to Compete' and 'Learning to Compete' stages of development.
 - "Competition Training" will be a priority and periodization a critical part of the planning process for the 'Learning to Win' and the 'Training to Win' stages of development.
 - The competition calendar must consider periodization for each stage of development.
 - The competition calendar must consider life style and personal development factors such as education and examination schedules.
 - Selection policies and championships must be compatible with each stage of development.
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10. Age Issues

10.1 Relative, Biological and Chronological Age: “Chronological Age” is based on the time between an individual’s birth and a specific date. “Biological or maturational age” is defined by actual growth and is often benchmarked by peak height velocity (PHV).¹

The concept of “Relative Age” is related to the competitor’s actual chronological age in years and days as compared to other athletes in the same age category. There is data in many sports the critical date for defining age creates significant bias for and against individuals simply based on their birthday date within the competitive year. For example in 2007 more than 13% of hockey player who played major junior hockey were born in January, and only 4% were born in December². This data and data from other sports establish a strong relationship between date

of birth and success. Using an arbitrary age definition means the older athletes tend to be bigger, stronger and more skilled than the younger participants. The age advantage increases the probability that an older athlete has more opportunity to develop through selection, streaming and differentiated opportunity. This becomes a self-fulfilling prophecy of doing well leading to more opportunity to develop and therefore widen the gap.³ The data from speed skating is not clear regarding this effect. However a child born June 30th will always be the youngest in the SSC defined age class with a child born 364 days earlier (born on July 1st) always in the same SSC age category but chronologically a year older.

The concept of “Relative Age” is related to the competitor’s actual chronological age in years and days as compared to other athletes in the same age category.

While not directly related to event and competition age categories the concept of linking the training programs to “maturational age” requires comment. The following is a quote from Volume 1: *Biathlon Canada LTAD Model Planning For the Sporting Excellence and Well-being of Canadians*:

“Biological groupings: A possible alternative to chronological age groups is grouping by biological age. Children’s growth rates accelerate at the onset of puberty, reaching a peak growth rate, Peak Height Velocity (PHV), near the middle. The PHV can be used to decide which individuals are in what stage of development, and sports medicine tells us which physiological systems optimize during which of the three phase: Pre-PHV, PHV, and Post-PHV.

However, PHV-based pubertal phases are of significantly different lengths for different children. Measurement of PHV involves measurements of a child’s sitting and standing heights every month before acceleration starts and weekly until deceleration sets in. Although this is categorized as a non-invasive procedure by sport medicine experts, it is a significant invasion of personal space by North American standards. It is also a significant administrative workload for sports organizations.

To make this concrete, a fast transition child could go through all three phases in 1.5 years, necessitating as many as three category transitions in one December through March competition season. In effect, moving from children’s competitions to young-adult competitions in one chronological year. A slow transition athlete will gradually progress through three categories in 3-4 years, receiving significantly more training and competition experience before facing up to young adult competition.

Because of the variability in onset and transition speed, together with the necessity of close and exact monitoring and reporting by local officials, competition classes based on the three pubertal transition phases, Pre-PHV, PHV, and Post-PHV, would be very difficult to organize and administer. Significant negative social and psychological outcomes would accrue to early, fast transit athletes as well as late start, slow transit athletes separated from their chronological peer groups by the sport system.”

“Puberty is the time when children begin to produce the hormones that transform their bodies and minds into their adult forms. This change has profound physiological implications and therefore is of profound importance to sport performance. This change is signalled by an increase in growth rate. This pubertal growth spurt is characterized by a “Peak Height Velocity”, PHV – the point of fastest growth. The PHV can be used as a marker to determine the hormonal state of teenagers. After puberty, growth rate drops steadily towards zero.

There is data in many sports the critical date for defining age creates significant bias for and against individuals simply based on their birthday date within the competitive year.

¹ The reader is directed to the section “A New Approach?” in *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Sport Centers, 2008, p23 to 25.

² For a discussion of relative age see “the Matthew Effect” p15 – 34 in” Malcolm Gladwell, *Outliers The Story of Success*, 2008.

³ See *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*. Canadian Sport Centres p 25

PHV is the obvious external marker for the pubertal transformation.

The PHV marker is very important in the LTAD context. Different individuals start into puberty at different chronological ages. Some individuals go through puberty very quickly, some very slowly. Statistically there seems to be three patterns: fast, average and slow. A fast transition can be as little as eighteen months. A slow transition can take up to five years. This combination of early and late starters with fast to slow transitions breaks up the statistical uniformity of the late childhood population. Suddenly, a group of children of the same chronological age exhibit a huge range of physiological ages.

Children aged 11 – 15, show large variations in size, growth rate and physiological development within age groups due to the asynchronous onset and progression of puberty.

Children transitioning through puberty, aged 11 – 15 show correspondingly large differences in sport performance within age groups.”

“Biological Age” is a critical bench mark for determining individualized developmentally sound programming. This requires identifying each individual’s onset of the growth spurt and peak height velocity (PHV). Three phases need to be identified Pre-PHV, PHV, and Post-PHV. Some methods such as wrist x-rays are perceived as invasive. Measurement protocols (arm span, sitting height and standing height) have to be administratively cost effective. Recent work suggests that these three measurements every three months is effective, efficient and optimal. A paper monitoring growth is available on the Canadian Sport for Life web site¹. The paper includes a measurement poster and report tables to assist coaches and parents to monitor growth to facilitate appropriate programming. This concept should be useful in assessing appropriate training programs for early and late developing athletes as well as part of rationale for early maturers training and competing with chronologically older athletes.

One caution “maturational or biological age” is only one of many developmental constructs. While development in these is related, developing quickly in one domain does not necessarily mean developing in the other domains.

One caution “maturational or biological age” is only one of many developmental constructs. While development in these is related, developing quickly in one domain does not necessarily mean developing in the other domains.

Relative, Biological and Chronological Age Developmental Constructs

- Biological or maturational age is an important factor to consider in grouping athletes particularly during puberty but is not practical for establishing age categories.
 - Biological or maturational age does not necessarily mean the same development in other domains therefore decisions should include biological age but must consider the other developmental domains.
 - Minimizing the effect relative age will improve the fairness of chronological age categories. The objective is to offset the relative age effect for individuals with birthdays close to the arbitrary age category date.
 - Another option is a definition of chronological age being the age in years at the first day of an event/competition. This would mean almost random changes from week to week and a championship could be defined by the date of the event/competition.
 - By having a single critical date of July 1st the ISU and SSC do not accommodate the concept of relative age. This means an athlete born in late June will always be in an age class with an athlete almost a year older but born in early July.
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¹ Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12, Canadian Sport Centers, 2008.



10.2 Gender Differences and Age: *Developing Physical Literacy a Guide for Parents of Young Children*¹ makes no mention of gender differences and the age boundaries for the 'Active Start', 'FUNdamentals' and 'Learning to Train' stages of development. During these stages of development the genders are similar with the exception the girls start their growth spurt a year earlier than the boys. However by the 'Training to Train' stage the boys are generally taller, heavier and stronger. Table U examines the gender differences in 100m times for each SSC age class. For the short track there is essentially no difference between boys and girls for Pee Wee and Bantam age classes. For long track there is no difference for Midgets. While the speed skating data is not perfect, there are reasons to combine genders at these ages. The Canadian and International records published on the SSC Web Site support the concept that post puberty males are significantly faster than females.

The major growth landmark that distinguishes between males and females is the period of change known as the growth spurt.

The major growth landmark that distinguishes between males and females is the period of change known as the growth spurt. During this period male and female bodies develop the secondary sexual characteristics and related biological changes. The benchmark for this is peak height velocity which refers to the maximum rate of growth in stature during the growth spurt. There are significant gender differences at the end of this period (males are generally taller, have greater body mass and are stronger) that make it necessary to have separate gender competition categories. The age of onset has two characteristics. The first is it starts more than

one year earlier in girls than boys and there are individual differences of up to four years within each gender. The difference between a late maturing female and early maturing female can be even much greater. The late maturing skaters will eventually catch up to their genetic potential if they continue to have the opportunity to participate in skating when they experience their growth spurt²

Gender Differences and Age Developmental Constructs

- Boys and girls should participate together in the same activities and races for the 'Active Start', 'FUNdamentals' and 'Learning to Train'.
 - Competitions and races should be in gender specific categories for 'Learning to Train', 'Learning to Compete', 'Training to Compete', 'Learning to Win', 'Training to Win' and 'Active for Life' stages of development.
 - Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local level for all stages of development.
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10.3 ISU Ages and Distances: The ISU ages for juniors are defined in Rule 108 of the *ISU Constitution and General Regulations*. The ISU distances for long track are defined by the *ISU Special Regulations and Technical Rules for Speed Skating and Short Track Speed Skating* rules 200, 201 and 281.

ISU Ages and Distances Developmental Constructs

- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for 'Learning to Compete' stages of development and older.
 - SSC distances should be consistent with the relevant ISU distances and competitions for 'Training to Compete' stages of development and older.
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¹ *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Sport Centers, 2008.

² Based on *Find Your Edge Speed Skating Canada's Long-Term Development Plan*, Speed Skating Canada p10-11.

11. Facilities and Equipment

11.1 Skates

Developing Physical Literacy, A Guide for Parents of Children Ages 0 to 12 states "Using equipment that is the right size, and that fits well makes learning activities much more enjoyable and also safer."¹ While children often grow at rates requiring more than one pair of skates per season, it is common that they use just one pair, an accommodation of the foot to the skate not the skate to the foot. Do they start the year with oversized skates or end the year with skates too small to make the learning experience enjoyable and safe? Either way is not an ideal situation and does not encourage skill development and love of skating. Economic alternatives to multiple skate purchases need to be considered in order to ensure proper fitting skates are affordable to all people and not just those with disposable financial resources. Club rental programs (with both speed skates and hockey skates) are a well recognized model to overcome skate cost issues.

With the high numbers of hockey skates in homes across the country, early speed skating programs based on hockey skates might become the program of choice for learning and developing skating skills.

At the 'Active Start', 'FUNdamentals' and 'Learning to Train' stages

of development the LTPAD information directs speed skating to emphasize physical literacy. With a focus on the ABC's; agility, balance, and coordination, in addition to the fundamental speed skating skills; basic position, direction of the push, arm swing, and crossing over to the left, it is important to ensure skaters have the equipment appropriate to the challenge.

Considering equipment cost and versatility, it is noted that hockey skates are accessible most everywhere, can be inexpensive relative to speed skates, and are designed for more dynamic use allowing for jumping, falling, and carving activities. Hockey skates are also easy to maintain commercially without parents having to invest in hand sharpening equipment and learn the appropriate skills for hand sharpening skates.

Hockey skates have the added benefit that they encourage multi-sport and recreational activity during the developmental stages whereas speed skates are sport specific. With the high numbers of hockey skates in homes across the country, early speed skating programs based on hockey skates might become the program of choice for learning and developing skating skills.

11.2 Ice Surfaces and Track Sizes

Sport venues for adults are often inappropriate for children. In other sports, balls for kids are smaller, base distances shorter, and fields and goals are smaller. If size appropriate adjustments are made to equipment and venues in other sports, why do the youngest and smallest speed skaters skate on adult size tracks appropriate for adult stride and speed? If the track radius is appropriate for the adult leg to crossover, how appropriate is it for the child leg? If the size of the track was appropriate for the size of the athlete would the skater have stride rates and patterns similar to adults? There is a motor learning concept that would suggest smaller tracks would provide more specificity of practice thus improve skill development.

If the size of the track was appropriate for the size of the athlete would the skater have stride rates and patterns similar to adults?

Economic alternatives to multiple skate purchases need to be considered in order to ensure proper fitting skates are affordable to all people and not just those with disposable financial resources.

¹ *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12*, Canadian Centres for Sport, p15.



For short track clearly the larger track is appropriate for adult skaters on large ice surfaces. But most communities in Canada do not have larger international ice surfaces. The 111.12m (8m radius) track crowds the perimeter of the ice surface and compromises safety in the smaller rinks resulting in speed skating programs not being offered in those venues. But in those rinks, for use by younger skaters, smaller tracks would provide a safe skating environment facilitating speed skating in more communities across the country.

The primary indicator of size is standing height. Table V is a recent Statistics Canada data on height at each age and extended to proportion of adult height at each chronological age. Proportionality should address specificity issues such as number of strides per straight away and corner. The 100m (7m radius) track is exactly 90% of a 111.12 track. Based on this and proportionality data in Table V the 100m track is better suited to many of the ages.

The 100m track with a 7m radius would make both straightaway one meter wider and the apex of both turns about 2.4 meters further away from the rink boards than a 111.12m track. The 100m track would allow even the smallest rinks (85X185) to have as much distance from the track to the boards as the 111m track has on an international ice hockey surface. The safety argument that competitions must be conducted in large ice surfaces would not be relevant. It should be noted that safety in Training venues is equally important.

For skaters in the 'Training to Train' stage of development the change in the radius would approximate the centrifugal force values of older skaters who skate at higher speeds (therefore simulate the lean on the corners) and the straight away adjusted length would lead to similar stride patterns as older skaters. (see Table W regarding angle of inclination) The ratio of straightaway to corners is approximately the same for both of these tracks. Depending on the size of the ice surface the 100m track would be close to the ISU rules for width of the straightaway (7m) and distance from the apex of the blocks to the barrier (4m)¹. For even younger skaters a 5 or 6 m radius would be appropriate.

The same concepts apply to long track ovals. The size of the oval should be appropriate for the majority of the skaters training at the facility. For younger children ovals as small as 200m may be more appropriate than the larger ovals. The smaller oval should have shorter straightaway to allow the skaters a reasonable number of straightaway strides and the radius reduced to allow corner cross-over strides. It has the additional advantages of shorter straightaway into a wind and is closer for coaches to help the young athletes learn. A smaller track should be much more economical to build and maintain and has obvious sustainability advantages such as a smaller footprint, require much less water and is more economical from regarding fuel used for maintenance. If built and maintained by volunteers the smaller track would require dramatically less volunteer time. Where there is an established 400m oval, options such as young children training and racing on warm-up lanes and a cutting through the middle could shorten the straightaway and address the appropriate radius issues.

Facilities and Equipment Developmental Constructs:

- The skates used at each stage should be suitable for the activities the skaters are doing.
 - The skates should be affordable and fit properly.
 - The size of the tracks and ovals should reflect the size and skill of the skaters.
-

A smaller track should be much more economical to build and maintain and has obvious sustainability advantages such as a smaller footprint, require much less water and is more economical from regarding fuel used for maintenance.

¹ International Skating Union, Special Regulations Short Track Speed Skating Rule 280.

12. Social Issues and Trends:

This final section is not based on developmental theory but other social issues that would be useful to consider at the same time SSC reviews events and competitions.

12.1 Volunteers: Sport and recreation accounts for the largest area of volunteerism in Canada (28% of all volunteer positions)¹. The following are the summary statements from this document:

- i. *Between 1997 and 2000, the overall rate of volunteering in Canada declined from 31% to 27%, and the average hours per volunteer increased from 149 to 162. This means fewer volunteers are working harder; 25% of volunteers responsible for 73% of hours, and a growing number of volunteers preferred to give money than time.*
- ii. *26% of sport organizations reported a loss of volunteers between 2000 and 2003. This was the highest rate of volunteer loss amongst all not-for-profits.*
- iii. *65% of sport organizations report difficulty recruiting the kind of volunteers they need.*
- iv. *58% say they have trouble retaining volunteers; 58% report difficulty planning for the future.*

Speed skating is a human resource intensive activity at the administrative level, the event organization and running stages. The sport is heavily dependent on volunteers and society is changing.

Volunteers Conclusions

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
 - Speed skating needs to consider ways to offer programs in a more efficient manner.
 - Speed skating has to make the demands on volunteers reasonable, equitable and fair.
-

12.2 Family: In the last three or four generations Canadian society has developed from a single income family with a stay at home parent to a dual income family. *"A generation ago 47% of the families had two wage earners; today it's 64%"²*. These are very busy families. There are at least two issues to consider. The first is the decline in the willingness to volunteer. Families are very busy maintaining their standard of living, need time on weekends to catch up and do the day to day activities of daily and family living (such as shopping or laundry, etc.). They may not have time to spend two long days at a rink, even to watch their children. The second is based on anecdotal evidence suggesting these parents often prefer to buy services rather than contribute their time and effort. However they may not have the money to do this: *"After they pay their basic expenses today's two income family has less cash left over than their one-income parents had a generation ago."³* The above addresses the dual income families and does not even consider the more complex demands of single parent families.

Speed skating has a social environment at events and competitions that makes being at the rink good. Many skating families have bought in, but speed skating needs to be concerned about those who have not and may have opted out of speed skating or never participated.

Family Conclusions

- Speed skating needs to consider the social and time demands of the sport.
 - More focused and less time-demanding speed skating events are likely more acceptable.
-

¹ Sport, *The Voluntary Sector and Canadian Identity. Learning from the Voluntary Sector Awareness Project*

² Rob Gerlsbeck, Squeezed, *Money Sense*, December and January 2009 p 50 – 56

³ Rob Gerlsbeck, Squeezed, *Money Sense*, December and January 2009 p 50 – 56.



12.3 Accessibility: cuts across a number of groups including minorities, persons with impairments and socio-economic issues. One issue affects almost all of these is the participation costs. Factors regarding equipment such as skates (see previous section regarding suitable skates), other costs such as skin suits, ice time and travel (see above regarding dual income families) effect cost. While it has become the norm to have parents or clubs purchase quality speed skates, but is it necessary? Specialized equipment has become a social norm, is it a necessity? Changing the rules (norms) could make the sport fairer and more accessible. Other factors such as travel can also be adjusted through social norms such as restricted distance rules.

Accessibility Conclusions

- Speed skating can make the sport more accessible by changing equipment and travel norms.

12.4 Sustainable Environment and Carbon Foot Print: One of the dominant social issues of today's society is global warming and sustainability. There are many issues involved here escalating costs of travel, amount of paper used at an event/competition, to the amount of water required to make a 400m oval (500,000 gallons). Recently SSC has struck a committee to address sustainability issues.

Sustainable Environment and Carbon Foot Print Conclusions

- Speed skating programs suited to the developmental needs of individuals can also consider alternative solutions to environmental issues.

12.5 SSC Demographics: Tables X and Y provide a summary of the participation rates for 2007/2008. The decline starts after Pee Wee (6 to 7 years old) and drop out accelerates between Midget (10 to 11 years old) and Juvenile (12 to 13 years old). The loss between Bantam (8 to 9 years old) and Juvenile (12 to 13 years old) is almost 40% and the loss from Midget (10 to 11 years old) to Junior (14 to 15 years old) is 50%. The reader is cautioned this has been done with cross sectional data rather than longitudinal data but there is no reason to doubt the trend or the critical ages.

Sport participation declined for Canadian youth between 1992 and 2005¹. In 1992 57% of boys and girls between 5 and 14 regularly participated in organized sports, this dropped to 51% by 2005. While the boys had higher participation rates in both 1992 and 2005 (56% to 46%), boys had a much greater decline from 1992 (10% to 4%). It is also important to note for the 11 to 14 age range, both boys and girls had a greater participation rate (64% and 55%) than during the 5 to 10 ages (53% and 47%). There is reason for concern based on the overall children sport participation data. The good news is that speed skating has been growing during the same time period. However, speed skating growth is still accompanied by significant attrition during puberty.

An interesting comparison is the SSC participation patterns between boys and the girls (Table X). Overall boys make up 62% of the skaters. However the trends are similar for boys and girls. There are anomalies such as the relatively low number of cradle girls. While this data is very inconclusive it does beg the question of why there are relatively only 2/3 the girls starting in cradle as boys? If one was to assume the same intake for girls as boys at the cradle age would the gender balance close in older age categories? This is only speculation based on this data.

The second anomaly is, for the boys, the rate of declining participation appears to start just after Bantam and continues until at least Intermediate (Tables X and Y). The trend for girls is similar except that the decline starts post Midget. Sociological and psychological theory and ideas would attribute this to puberty and the different social expectations for females and males. It is raised at a descriptive level to ask the question "Is there anything SSC can do to make speed skating more attractive to both these age groups?" For the boys, the decline does take place at an age when peers and significant others play a more dominant role in the individuals choices. This could be attributed to boys wanting to be involved in team activities especially school sports. It is impossible to say this is the reason but it does provide for some rationale for speed skating to include more team activities in the regular practice of the sport.

SSC Demographics Conclusions

- There is a significant decline in participation from the start to the end of puberty.
- Is it possible to recruit more girls at the 'Active Start' stage of development?
- Team activities should be considered as a proactive approach to declining participation trends especially during puberty.

¹ Warren Clark, *Kids' sports' Component of Statistics Canada Catalogue no. 11-008-X Canadian Social Trends*

APPENDIX 3 DEVELOPMENTAL RECOMMENDATIONS

TABLE OF CONTENTS

1. Introduction	82
2. Activities and Distances	84
2.1 Format	85
2.2 Team Activities	86
2.3 Distances	87
2.4 Stage Specific Activities and Distances	88
3. Age Categories	94
3.1 Stage Specific Age Categories	95
3.2 Critical Date(s) for SSC Ages and Relative Age	98
3.3 Seasons	99
3.4 Summary Age Categories	101
4. Nature of Feature Events and Competitions	103
4.1 National Championships, Competitions, Periodization and Preparation	104
4.2 Multi-Sport and other International Event Issues	106
4.3 Junior Participation at International Events	109
4.4 Junior Specialization	110
4.5 Stage Specific Feature Events and Competitions	111
5. 'Active For Life' Recreational Competition, Volunteer, Fitness and Fun Participation	121
5.1 General	121
5.2 Age Categories	123
5.3 Activities and Distances	124
5.4 Nature of Feature Events and Competitions	125
6. Long Track and Short Track (Common and Unique Issues)	126
7. Equipment and Tracks	127
7.1 Specific Skates for Specific Stages	127
7.2 Nature of Uniforms	130
7.3 Facilities and Tracks	131
8. Social Issues	132
8.1 Competition Formats	133
8.2 Volunteers	135
8.3 Talent Identification	137
8.4 Collaboration with Other Related Sports	138
8.5 Carbon Foot Print, Travel Costs and Other Environmental Issues	139



1. Introduction

SSC's Long Term Participant/Athlete Development Model (LTPAD) is SSC's commitment to ensure that every participant has an optimal learning environment at every stage of development. Ideally this will provide each participant the necessary tools to achieve his or her full speed skating potential. The LTPAD Model defines the best learning participation environment at each stage of development by taking into account physical, mental, cognitive and emotional factors (see Table A for each stage objectives)¹. The LTPAD Model provides research based information to facilitate principle based developmental recommendations. There are two primary documents where most of the rationale is found: *Canadian Sport for Life* document² and the *Find Your Edge* document³. The later document was written very early in the LTPAD process and was very creative. The Review Team has used this document extensively but a few aspects were expanded and where appropriate conclusions revised.

To effectively review the existing event/competition system and propose new opportunities it is essential to have a clear vision of how events/competitions service the mission, vision and values of Speed Skating Canada as well as the long-term athlete development model. A set of guiding principles based on the *Sport for Life's* LTAD model and reflecting SSC's values were developed by the Review Team to be an objective foundation for event/competition review (see Appendix Guiding Principles for the rationale and list of the nine principles). These principles were endorsed by SSC Board of Directors (October, 2009).

All nine of the SSC Principles for Competition Review apply to almost every developmental recommendation, but some are very specific to the developmental recommendations (see section Guiding Principles for a list of the principles). The more specific ones will be noted in each subsection.

This section is a synopsis of an ideal overarching event and competition structure being recommended for SSC (SSC) events and programs. The developmental recommendations are based on four sets of data:

- specific distances raced at each age are cornerstones of defining event and competition activities (these should be defined not by tradition rather by the available developmental data)
- windows of training and developmental data must be used to identify the types of activities children should be engaged in and should be reflected in the event and competition activities
- age categories must reflect meaningful participation as guided by principles of growth and development
- social considerations must also be considered and there is evidence that young people want to be involved in team activities particularly during the Early and Late Puberty stages of development⁴

The previous section summarizes the basic developmental constructs used in making the developmental recommendations. For each developmental recommendation the appropriate developmental constructs are noted. The reader is directed to the *Canadian Sport for Life* document⁵ for detailed information on these statements.

To effectively review the existing event/competition system and propose new opportunities it is essential to have a clear vision of how events/competitions service the mission, vision and values of Speed Skating Canada as well as the long-term athlete development model.

1 It is very important to note that in much of the text of the document and in the objectives there is a strong bias to anatomical and physiological domains. This is more apparent at the older domains. The irony is anecdotally athletes report high level success is more mental than physical. At a recreational level this is likely even more important. Therefore this document will try to extend these to more of the social and psychological aspects.

2 *Canadian Sport for Life Long Term Development Resource Paper*, Canadian Sport Centres.

3 *Find Your Edge SSC's Long Term Athlete Development Model*, Speed Skating Canada

4 *Athletics Changing Athletics Competition, Analysis and Principles*, UK Athletics

5 *Canadian Sport for Life Long Term Development Resource Paper*, Canadian Sport Centres

The current SSC competition structure is based on two year age categories with gender equivalent age categories and relatively equivalent distances. The basic determinant of the SSC competition structure has been chronological age. Many provincial/territorial branches have adapted their competitive structures to use an Ability format which groups skaters based on speed, though the distances raced remain based on SSC age categories. The LTPAD uses developmental stages to define appropriate program and training. Therefore the first question to address is the issue of which activities and distances are appropriate for each stage of development. Once the activities have been decided, then the age categories can be considered. Finally the very nature and levels of the competition can be considered in light of the developmental stages. This relates to many issues such as appropriate age for national championships, a continuum of levels of competition from club to local to branch to regional to national to international.

What is new is that a model is now in place which provides scientific evidence on which to base this decision making process.

These are not new SSC issues, in fact there is hardly an Annual General Meeting when one or more of these are not discussed. What is new is that a model is now in place which provides scientific evidence on which to base this decision making process. It is hoped that the review of these issues will lead to resolutions based on the LTPAD. In addition to the LTPAD, these have to be considered in light of SSC participation trends, geographical location of clubs and social trends influencing all of sport and society. The resolutions are overarching and should be considered by SSC as one step in the change process.

The developmental recommendations and the rationale will be the starting point for decisions by SSC Board, Standing Committees, Branches and members to make decisions and implement program changes.

These developmental recommendations are linked directly to the LTPAD evidence. In and of themselves they do not necessarily mean program changes. The developmental recommendations and the rationale will be the starting point for decisions by SSC Board, Standing Committees, Branches and members to make decisions and implement program changes. In so doing, programs must be clearly and coherently linked (training, competition/event, coaching, officiating and membership development) through principles basic to participation in all speed skating activity.



2. Activities and Distances

The growth and development data summarized in the LTPAD conclude that there are optimal Windows of Trainability. Tables F, G, H and I summarize the Windows of Trainability as well as stages to avoid specific training. At some stages there is strong evidence that specific systems are ready to benefit from specific training. At some stages there is at best a minimal benefit from specific types of training and some potential for long term damage. The five S's: Stamina, Strength, Speed, Skill and Suppleness (flexibility) are the basis of training and performance. It is natural that training programs will focus events such as competition therefore the distances raced and skill tests should reflect these Windows of Trainability. The rationale for the distances raced reflecting the Windows of Trainability, is simply that what one races dramatically influences the preparation. Racing distances and activities are the carrot for training. Coaches will coach towards activities and distances to be raced to reflect the LTPAD model.

The reader is referred to Tables H and I for the 2008 Short and Long Track Mass Start Records as a reflection of age related times. One way to consider appropriate distances is by the time of the race (as reflected by the record). Then compare these times to the appropriate and contraindicated windows. This brings into question most distances raced. Based on this SSC has to reconsider the distances skater's race.

The rationale for the distances raced reflecting the Windows of Trainability, is simply that what one races dramatically influences the preparation. Racing distances and activities are the carrot for training.

The primary Speed Skating Canada Guiding Principles for Competition are:

1. Provide a pathway towards personal and sporting excellence for all participants.
2. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
7. Utilize the basic characteristics identified in the LTAD and other literature in the selection of event/competition activities and skills for each stage of development.
9. Success defined and celebrated in relation to the goals and objectives of the stage of all participants.

The following are developmental constructs related to the activities and distances section:

- Windows of Trainability should be a major determinant of SSC competition and event activities for each developmental stage.
- Team activities should be considered as a proactive approach to declining participation trends especially during puberty.
- Sport needs to offer a strong social environment during all stages of development.
- There must clear enunciated objectives for each competition related to the relevant stage of development objectives.

2.1 Format

While speed skating has been innovative in many ways tradition has been to only have counter clockwise timed races. At the stages of development emphasizing physical literacy there are other options. The skill activities should be related to the SSC's Cutting Edge Pin Program. The Review Team noted that modifications to the Cutting Edge Pin Program may be required to fully support the development of physical literacy. An event could include some of traditional races along with skill tests and clockwise races. These events also could include a number of relays including the Short Track relays but also include team pursuit races, shuttle relays and even a team competition patterned after the ISU World Short Track Team competition.

While speed skating has been innovative in many ways tradition has been to only have counter clockwise timed races.

The following are developmental constructs related to the activities and distances section:

- 'FUNdamentals', 'Learning to Train' and 'Training to Train' stages of development should include a significant amount of clockwise racing.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.

Developmental recommendations event format:

- a) At the entry level speed skating events/competitions should include activities that support the development of physical literacy.
- b) At the entry level speed skating events/competitions should include equal amounts of clockwise and counter-clockwise racing.



2.2 Team Activities

As a child grows older they want to be affiliated with their peers and there is also a strong tendency to be involved on teams. The popularity of team sports is evident by the huge numbers of children involved in hockey, soccer, basketball, baseball and volleyball – the most popular organized youth sports in Canada. While speed skating traditionally has been an individual sport, in Short Track the relay is a highlight of major competitions and team world championships are very popular. In regional and local competitions relays are often raced at the end of a two day competition “if there is time” and involve teams of skaters placed together based on performance at that meet and not allegiance to a club or friendship. Part of being on a team is working together to prepare for the team activity. Long Track speed skating has recently added team pursuit as World Cup and Olympic competitions. SSC teams have been very successful in this event in part because of their specific preparation for the races. These trends and social development information provide reason for speed skating to consider innovative team activities.

As a child grows older they want to be affiliated with their peers and there is also a strong tendency to be involved on teams.

The following are developmental constructs related to the team activity section:

- For preschool children, primary affiliation is with parents and this gradually changes to significant others and peers by the teenage years.
- At 10 years of age children reach a stage where affiliation to a team becomes more important.
- At 12 years of age children start to have individualized leisure preferences.
- By Early Adulthood (15 years and older) they have the capacity for self-actualization.
- By Early Adulthood (15 years and older), there is also a need to be self-directed and independent.

There are a number of ways to increase team opportunities. One would be to have competitions that feature relays and team pursuits as integral parts of a competition. Another would be to modify the World Team Championship format to age class championships. A third possibility would be team skill competitions perhaps even related to the SSC Cutting Edge Pin Program. Finally speed skating could adopt other formats such as shuttle and other relays into their events and competitions. These could be adopted at all stages but are likely more important at the ages just before and while children are seeking to be more affiliated with peers. This starts at 11 or 12 years of age, which is the same age SSC’s demographics indicate rapid drop off.

While provincially/territorial branches would be the primary facilitators of delivery at this age, at older ages, team events could even become national championships either as part of the traditional championships or stand alone events. In particular team activities should be introduced prior to puberty. SSC should also develop guidelines and resources to help organize and facilitate innovative formats.

Developmental recommendations team activities:

- a) At all stages of development, speed skating offer more team activities including team specific events and/or competitions.
- b) SSC facilitate innovative events formats.
- c) In the ‘Learning to Train’ stage of development team activities should be introduced.
- d) In the ‘Training to Train’ stage of development team activities should be emphasized.

2.3 Distances

The issue of appropriate distances for each stage of development must consider one important developmental construct:

Windows of Trainability should be a major determinant of SSC competition and event activities for each developmental stage.

These Windows of Trainability are summarized in Tables F and G for each stage. These windows indicate in general what time frames specific systems should be “emphasized” and which time frames are of “little value”. The tradition in speed skating is to consider distances but the energy systems are much better defined by time windows, reflecting the duration of a maximal effort. Table H is a summary of these time windows, ages, Short Track and Long Track distances SSC races at each age and the related records. Time frames labelled of little value because of minimal training benefit and/or even potential for long term health risks to the participants.

Windows of Trainability should be a major determinant of SSC competition and event activities for each developmental stage.

It is clear from Table H that most distances raced at every stage are not well supported by developmental theory. If the Windows of Trainability were used in isolation to decide on the time frames raced the essence of speed skating - racing - would be threatened. It would be difficult to have events where speed skating racing skills could be developed. Using this without consideration of racing simply does not make good sense. The Review Team considered the windows of opportunity, skill development and racing to propose the following guidelines:

Stage of Development	Female age	Male Age	Emphasis
FUNDamentals	6 to 8	6 to 9	Racing 0 to 30 seconds. Emphasis on skills
Learning to Train	8 to 11	9 to 11	Racing 0 to 45 seconds. Events 10 min. + Emphasis on skills (window opportunity skill)
Training to Train	11 to 15	12 to 16	Racing 0 to 60 seconds (avoid 60 to 90 seconds) Events 10 min. + Add one distance 90 seconds +
Training to Compete	16 to 21 +	16 to 23 +	ISU distances
Training to Win	18 +	19 +	ISU distances
Active for Life			Would depend on objectives of participants Competitive: International distances Health: longer distances e.g. road racing and skiing

There is a trade off with respect to Windows of Trainability and the essence of speed skating that is used to select the time frame (distances). While this trade off is necessary it should not interfere with the training programs for each age. For training programs the LTPAD must dominate the types of training. It is also critical to recognize the need to allow for the maturity differences related to gender differences (girls mature earlier) and early and late maturers.

There is a challenge to include longer distances in a meaningful and motivational format to get an aerobic training effect related to the individual’s effort. The above guidelines recommend a 10 minute race. This would be a new event and would have the skater skate as far as they can in 10 minutes (their “score” would be the distance skated).



2.4 Stage Specific Activities and Distances

'Active Start' (0 to 6yrs)

The stage of development is about very basic motor skills which includes skating.

The LTPAD Objective for the 'Active Start' stage of development is:

- Learn fundamental movements and link them together into play (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Events, competitions and activities should focus on physical literacy as well as speed skating skill during the late childhood stage.
- 'Active Start' stage of development should include a significant amount of clockwise racing.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- 'FUNdamentals', 'Learning to Train' and 'Training to Train' stages of development should include a significant amount of clockwise racing.
- Physical literacy including physical development take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').

Developmental recommendations in the 'Active Start' stage of development:

- a) Activities should be related to the gross motor skills identified in Developing Physical Literacy, A Guide For Parent Of Children Ages 0 to 12.
- b) Equal amounts of clockwise and counter-clockwise skating, straight line races, shuttles, weaves and racing on a variety of track sizes.
- c) Racing should be in the practice setting and just for fun.
- d) Will be the start of a continuum of introduction to racing.
- e) Fun should be a primary consideration.

'Fundamentals' (males 6 to 9 yrs and females 6 to 8 yrs)

This stage of development emphasizes basic skating skills with an introduction to speed skating.

The LTPAD Objectives for the 'Fundamentals' stage of development are:

- Basic movement skills (*Find Your Edge*).
- Learn all fundamental movement skills and build overall motor skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- 'Fundamentals' stage of development should include a significant amount of clockwise racing.
- Precision in skills can be achieved due to the relatively advanced neurological development.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.
- For preschool children, primary affiliation is with parents and this gradually changes to significant others and peers by the teenage years.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' developmental stage.
- Physical literacy including physical development take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.

Developmental recommendations in the 'Fundamental's' stage of development:

- Activities in event/competitions should focus primarily on physical literacy and speed.
- Races/activities during competitions and events should emphasise the development of abilities as they relate to the Windows of Trainability for Speed.
- Equal amounts of clockwise and counter-clockwise skating, straight line races, shuttles, weaves and racing on a variety of track sizes.
- Mid-point a continuum of introduction to racing, children would race but physical literacy would be first priority.
- Fun should be a primary consideration.



'Learning to Train' (Males 9 to 12 yrs and females 8 to 11 yrs)

This developmental stage continues physical literacy objectives, but emphasizes speed skating skills.

The LTPAD Objectives for the 'Learning to Train' stage of development are:

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

The following are the developmental constructs related to this stage of development:

- The 'Learning to Train' stage of development should include a significant amount of clockwise racing.
- At the start of puberty precision in skills can be achieved due to the relatively advanced neurological development.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- The transition from 'Learn to Train' to 'Train to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.
- 'Learning to Train' stage of development should include a significant amount of clockwise racing.
- At 10 years of age children reach a stage where affiliation to a team becomes more important.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Physical literacy including physical development take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.

Developmental recommendations in the 'Learning to Train' stage of development:

- k) Activities in event/competitions should continue to address physical literacy.
- l) Skating skills should be emphasized (*Window of Trainability for Skill*).
- m) Clockwise and counter-clockwise skating and on a variety of tracks.
- n) Races/activities during competitions and events should emphasise the development of abilities as they relate to the *Window of Trainability for Skill*.
- o) Races/activities during competitions and events should reinforce the development of abilities as they relate to the end of the *Window of Trainability for Speed*.
- p) Activities/events should now include traditional speed skating races.
- q) More emphasis on racing as the end of the continuum of introduction to racing.
- r) Participation should be fun.

'Training to Train' (males 12 to 16 yrs and females 11 to 15 yrs (age ranges are PHV dependent))

The period of the most rapid growth and development occurs during the 'Training to Train' ages. The effect of early and late maturity over a two year age window means very large individual differences. This is also the period where SSC registration declines and individuals become more independent. While selecting to appropriate distances is important in all stages selection at this age must be meaningful to the individual.

The LTPAD Objectives for the 'Training to Train' stages of development are:

- Building the engine and sport specific skills (*Find Your Edge*).
- Build and aerobic base, develop speed and strength towards the end of the stage and further develop and consolidate sport specific skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- The 'Training to Train' stage of development should include some clockwise racing.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- The transition from 'Learning to Train' to 'Training to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' stage of development.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages. At 10 years of age children reach a stage where team sports are important.
- At 12 years of age children start to have individualized leisure preferences.
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' stage of development.

Developmental recommendations in the 'Training to Train' stage of development:

- s) Races/activities during competitions and events should continue to emphasise the development of abilities as they relate to the end of the Window of Opportunity for Skill.
- t) Races/activities during competitions and events should emphasise the development of abilities as they relate to the Window of Trainability for Stamina and Speed.
- u) Emphasize races that reflect the stage objectives as well as speed and passing (key components of speed skating).



'Learning to Compete' (males 16 to 18 yrs and females 15 to 17 yrs)

The stage is the stage where athletes enter the continuum of development towards achieving international excellence and recommendations are based on creating categories which will guide athletes along this pathway. It is during this stage that the pathways towards international excellence and active for life become more apparent and speed skating must ensure that competitive opportunities are provided for both.

The LTPAD Objectives for the 'Learning to Compete' stage of development are:

- Optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).

The following are developmental constructs related to this stage of development:

- The neurological system is almost fully developed when the child starts puberty.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Learning to Compete' stage of development.
- SSC distances should be consistent with the relevant ISU distances and competitions for 'Training to Compete' stages of development and older.

Developmental recommendations in the 'Learning to Compete' stages of development and older:

- v) SSC distances will be influenced by ISU and other International regulations.
- w) Races/activities during competitions and events should continue to emphasise the development of abilities as they relate to the end of the Window of Trainability for Speed.
- x) Races/activities during competitions and events should emphasise the development of abilities as they relate to the Window of Trainability for Stamina.

'Training to Compete' and older: (males 18+, females 17+)

While skaters are still developing optimal physical capacity and technical skill the focus is on preparing for competition and competing.

The LTPAD Objectives for the older stages of development are:**'Training to Compete'** stage of development (males 18 to 21 yrs and females 17 to 21 yrs)

- Further optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Optimizing the engine and learn to compete (*Sport for Life*).

'Learning to Win' stage of development (ST males 21 to 23 yrs and ST females 21 to 23 yrs) (LT males 21 to 25 yrs and LT females 21 to 25 yrs)

- Maximizing the engine and speed skating specific skills and fitness (*Find Your Edge*).

'Training to Train' stage of development (ST males 23+ and ST females 23+)(LT males 25 + and females 25+)

- Further maximizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Podium performances (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- The neurological system is almost fully developed when the child starts puberty.
- There will be a transfer from a priority of developing physical capacities to competition in the 'Learning to Compete' stage of development.
- SSC distances should be consistent with the relevant ISU distances and competitions for 'Training to Compete' stages of development and older.

Developmental recommendations in the 'Learning to Compete' stages of development and older:

- y) SSC distances will be influenced by ISU and other International regulations.
- z) Races/activities during competitions and events should continue to emphasise the development of abilities as they relate to the end of the Windows of Trainability for Speed.
- aa) Races/activities during competitions and events should continue to emphasise the development of abilities as they relate to the end of the Windows of Trainability for Stamina.

Please note the 'Active for Life' stage merits specific focus are included in the recommendations are in their own section below.



3. Age Categories

Current SSC age categories are cradles (under 6) then two year windows until senior (over 17) and then in 5 year windows for Masters (starting at 30) (see Table B). These age windows are not compatible with the LTPAD stages of development and do not take into consideration the Windows of Trainability.

With respect to gender Table U presents the median of the male and female times for 100m in both Short Track and Long Track. For the Short Track there is essentially no difference between the boys and the girls for Pee Wee and Bantam age classes and for the Long Track there is no difference for midgets. While the data is not perfect there are reasons to combine the genders at these ages. However it is clear from Table U that at older ages and stages males are significantly faster than females.

The primary principles that must be considered in these decisions are:

3. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
8. Utilize the basic characteristics identified in the LTAD and other literature to define the event/competition objectives for each stage of development.
9. Success defined and celebrated in relation to the goals and objectives of the stage of all participants.

The following are the developmental constructs related to the age categories section:

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
- Boys and girls should participate together in the same activities and races for the 'Active Start', 'FUNdamentals' and 'Learning to Train'.
- For the purpose of comparison, skaters should be measured against their age group peers and same gender for 'Learning to Train', 'Learning to Compete', 'Training to Compete', 'Learning to Win', 'Training to Win' and 'Active for Life' stages of development.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local is for all stages of development.

3.1 Stage Specific Age Categories

'Active Start', 'Fundamentals' Stage and 'Learning to Train' (boys under 13 yrs and girls under 12 yrs).

These developmental stages focus on physical literacy and as the child matures basic skating and then speed skating skills.

The LTPAD Objectives for these stages of development are:

'Active Start' (0 to 6yrs)

- Learn fundamental movements and link them together into play (*Sport for Life*).

'Fundamentals' (males 6 to 9 yrs and females 6 to 8 years)

- Basic movement skills (*Find Your Edge*).
- Learn all fundamental movement skills and build overall motor skills (*Sport for Life*).

'Learning to Train' (Males 9 to 12 and females 8 to 11)

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

The following are the developmental constructs related to these stages of development:

- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Competition requires ability to analyse performance. Until Early Puberty, competitions should be managed so children are able to analyse their success and failure.
- The transition from 'Learning to Train' to 'Training to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not.

Developmental recommendations in the 'Active Start', 'Fundamentals' and 'Learning to Train' stages of development:

- No need for SSC events or competitions in these age categories.
- Provide a continuum of introduction to racing based on physiological development and that competitions such as ability formats are likely more appropriate than age defined championships.
- No formal age categories are recommended.
- No records to be recognize or kept.



'Training to Train' (males 12 to 16 and females 11 to 15 (age ranges are PHV dependent))

The period of the most rapid growth and development occurs during the 'Training to Train' ages. The effect of early and late maturity over a two year age window means very large between individual differences even at the same chronological age. Individual differences can be reduced with narrower age categories. Speed skating has a long and rich tradition of two year age categories but at a stage of rapid change a narrower range would reduce the impact of individual maturity differences.

The Review Team considered a number of solutions proposed to minimize the impact of variable growth during this stage. One solution is the concept of relative age which would mean participating in an age category would be defined by a skater's actual chronological age on the first day of competition. The best theoretical solution would be to use a formula based on Peak Height Velocity (PHV) but this is too complicated; would be vulnerable to misunderstanding and perhaps even misuse; and would not take into consideration social, psychological and emotional development of participants. A practical compromise is to reduce age categories to single years for the 'Training to Train' stage and to establish an age cut off date for before the New Year and an alternate date for after the New Year. The later would mean that a skater is not always the youngest in his or her age category.

The effect of early and late maturity over a two year age window means very large between individual differences even at the same chronological age.

The primary principles that must be considered in these decisions are:

4. Provide a pathway towards personal and sporting excellence for all participants.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
7. Utilize the basic characteristics identified in the LTPAD and other literature to define the event/competition objectives for each stage of development.
8. Utilize the basic characteristics identified in the LTPAD and other literature in the selection of event/competition activities and skills for each stage of development.

The LTPAD Objectives for the 'Training to Train' stages of development are:

- Building the engine and sport specific skills (*Find Your Edge*).
- Build and aerobic base, develop speed and strength towards the end of the stage and further develop and consolidate sport specific skills (*Sport for Life*).

The following are the developmental constructs related to this stage of development:

- Puberty is a period of rapid growth during which the length of limbs may grow rapidly, therefore severely challenging skills development.
- Puberty is a time of maximal individual differences within a chronological age.
- The transition from 'Learning to Train' to 'Training to Train' includes the child gaining the understanding on where they rank competitively within a group. They form an opinion on whether they are good or not.
- Competitions and races should be in gender specific categories for the 'Training to Train' stage of development.

While not directly related to event and competition age categories the concept of linking the training programs to maturational age requires comment. There is a relatively easy method for tracking growth with three simple measurements of standing height, sitting height and arm span that could easily be done by coaches or parents¹. By collecting this data coaches should be able to determine the optimal training programs for each individual to ensure that participants are benefiting from the programs designed to take advantage of the windows of training for each individual.

'Training to Train' is a stage of development with considerable range in skill related to Peak Height Velocity (PHV). One concern raised regarding the one year age windows proposed below is that the talented early maturers may not have much competition within the one year window. One possibility is to allow that individual to compete in an older age category at least in local if not regional competitions. The SSC Policies and Regulations do permit this with one exception.²

One concern raised regarding the one year age windows proposed below is that the talented early maturers may not have much competition within the one year window.

Developmental recommendations in the 'Training to Train' stage of development:

- e) SSC age categories be one year.
- f) If early maturity based on biological age can be documented and with appropriate performance skaters be encouraged to skate in an older age class. Markers indicating psychological, social and emotional readiness should also be provided.
- g) SSC championship categories should be gender specific.
- h) In local events where racing is part of the competition gender specific categories may or may not apply (e.g. ability format competitions).
- i) Coach education materials³ should assist coaches to develop individualized training programs.

¹ Bayli, Istvan and Way, Richard, *The Role of Monitoring Growth in Long-Term Athlete Development*, Canadian Sport Centers, 2009.

² **K3-103:** *In any Canadian or North American Age Class Championship, a skater is limited to the events of any one age class. If a skater competes in a particular age class in one Canadian or North American Championship he/she cannot return to a lower age class for future championships. This last point does not apply to Masters events. Long Track and Short Track will be considered separate disciplines so that movement in one discipline shall not affect the other. Juvenile, Junior and Intermediate skaters may skate in any sanctioned Olympic Style competition and return to the lower age class without penalty. Any skater, regardless of age, may compete in any Short Track Open Class event, and return to skating in the appropriate age class at a Canadian or North American Age Class Championship without penalty.*

³ Coach education programs should be reviewed to ensure the concept of biological age is fully explained and resources are available to in developing individualized training program based on the biological age for participants.



3.2 Critical Date(s) for SSC Ages and Relative Age

For age class competitions the relative age of the skater could provide skaters with an early birthday (e.g. July) with an advantage over younger skaters in the age class (e.g. June birthday). For skaters born as little as one day apart the older skater would always have an almost full year age advantage.

This could affect the 'Fundamentals', 'Learning to Train' and 'Training to Train' stages of development but if the developmental recommendations regarding national age class championships and regional championship are endorsed the greatest impact would be on the 'Training to Train' stage of development where regional competitions are proposed. In these stages factors such as early/late maturers and the growth spurt dramatically impact on individual differences.

For older age categories where elite athletes are starting to compete internationally there is a need for consistency with the ISU age classification system.

The following are the developmental constructs related to the relative age section:

- Post puberty the majority of the growth is complete.
- During puberty there is a need to minimize the chronological age differences between individuals.
- Biological or maturational age is an important factor to consider in grouping athletes particularly during puberty but is not practical for establishing age categories.
- Biological or maturational age does not necessarily mean the same development in other domains therefore decisions should include biological age but must consider the other developmental domains.
- Minimizing the effect relative age will improve the fairness of chronological age categories. The objective is to offset the relative age effect for individuals with birthdays close to the arbitrary age category date.
- Another option is a definition of chronological age being the age in years at the first day of an event/competition. This would mean almost random changes from week to week and a championship could be defined by the date of the event/competition.
- By having a single critical date of July 1st the ISU and SSC do not accommodate the concept of relative age. This means an athlete born in late June will always be in an age class with an athlete almost a year older but born in early July.
- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for 'Learning to Compete' stages of development and older.

Developmental recommendations critical date and relative age:

- a) To reduce the single critical date effect in the 'Training to Train' stage of development (and younger), two critical dates are proposed:
 - the age of each skater for SSC competitions be defined as their age as of July 1st for age class competitions held between July 1st and January 1st
 - and January 1st for age class competitions held between January 1st and July 1st.
- b) In the 'Learning to Compete' stage of development and older, ISU criteria for age categories (July 1st) be used for SSC age categories.

3.3 Seasons

The concept of dual critical age dates implies two seasons; one before and one after Christmas. Given most natural ice Long Track facilities are only available in early December these before Christmas events would likely be Short Track events. The second season would be after Christmas. Both of these seasons would include “Developmental Competitions” and “Simulation Competitions” with one “Performance Competition”¹. In the post January 1st season, where possible, one of the “Performance Competitions” would be Long Track.

Developmental recommendation seasons:

- a) In the ‘Training to Train’ stage of development with two critical dates for defining an age category there would be two competition seasons. One ending December 31st and another ending June 30th.

‘Learning to Compete’ (males 16 to 18 yrs and females 15 to 17 yrs)

The ‘Learning to Compete’ stage is the stage where athletes enter the continuum of development towards achieving international excellence and recommendations are based on creating categories which will guide athletes along this pathway. It is during this stage that the pathways towards international excellence and active for life may diverge and speed skating must ensure that competitive opportunities are provided for both.

The LTPAD Objective for the ‘Learning to Compete’ stage of development is:

- Optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).

The following are the developmental constructs related to this stage of development:

- Post puberty the majority of the growth is complete.
- Post puberty stages of development require gender specific races/competitions.
- Competitions and races should be in gender specific categories for ‘Learning to Compete’ stage of development.
- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for ‘Learning to Compete’ stages of development and older.

Developmental recommendations in the ‘Learning to Compete’ stage of development:

- b) SSC age categories will be gender specific.
- c) In local events where racing is part of the competition gender specific categories may or may not apply (e.g. ability format competitions).
- d) SSC age categories will be influenced by ISU and other International regulations.
- e) Different age categories for national championships for males and females, to account for the female’s earlier growth spurt and related post grow spurt maturity.

¹ “Performance Competition” is allied to summative evaluation where the outcome is the focus. This would include all competitions that lead to selection to a team, funding, ranking and major championships. These competitions would be important points, perhaps even the goal, in an athlete’s periodization plan.

“Developmental Competition” is allied with formative evaluation which focuses on the process, physical development and learning. These could be the competition objectives when an athlete participates in a competition but the results are used to analyse the skater’s development. Specific objectives could be to test fitness, execute skill in competition, try out racing strategies etc.

“Simulation Competition” would be done in controlled situations within training and practice or in situations such as club handicap racing or informal Saturday morning racing. These would not be sanctioned in any way and for the most part managed by coaches. These would also focus on the process of developing and therefore be formative.



'Training to Compete', 'Learning and Training to Win'

Athletes at the 'Training to Compete' stage of development are generally regarded as senior athletes (SSC seniors are 18 and over and ISU 19 and over as of July 1). Athletes who have been very successful as junior athletes may encounter less success at the senior level. These entry level senior athletes are now competing with athletes who are much older and have had more time to develop. These older senior athletes may also have had considerable experience at the international level. Athletes at the 'Learning and Training to Win' stages of development are generally regarded as senior athletes. To allow entry level senior athletes to have meaningful competition there should be appropriate age categories.

The LTPAD Objectives for the 'Learning and Training to Win' stages of development are:

'Training to Compete' (males 18 to 21 yrs and females 17 to 21 yrs)

- Further optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Optimizing the engine and learn to compete (*Sport for Life*).

'Learning to Win' (ST males 21 to 23 yrs and ST females 21 to 23 yrs) (LT males 21 to 25 yrs and LT females 21 to 25 yrs)

- Maximizing the engine and speed skating specific skills and fitness (*Find Your Edge*).

'Training to Win' (ST males 23 yrs + and ST females 23 yrs +)(LT males 25 yrs + and females 25 yrs +)

- Further maximizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Podium performances (*Sport for Life*).

The following are the developmental constructs related to this stage of development:

- Competitions and races should be in gender specific categories for 'Learning to Win' stage of development.
- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for 'Learning to Compete' stages of development and older.

Developmental recommendations in the 'Learning to Win' stage of development:

- f) SSC age categories will be gender specific categories,
- g) SSC age categories will be influenced by ISU and other International regulations.
- h) SSC have two new age categories Neo Senior B (19 and 20) and Neo Senior A (21, 22 and 23).

3.4 Summary of Age Categories

The LTPAD model and related constructs are clear about girls maturing earlier than boys. The difference in the maturation is much more than physical size. There are pubertal hormonal changes that have effects on Windows of Trainability, which are as important as physical size. There are social and psychological differences as well. If the age categories reflect these differences there is the obvious issue of having different age categories for boys and girls. It was decided to propose two age category systems one recommending identical gender age categories and the other recommending age categories that reflect the gender differences. For skaters 15 years and older the ISU age categories were used in both proposals.

The difference in the maturation is much more than physical size.

A secondary problem of using the gender specific age categories is the overlap for the males at the end of the 'Training to Training' stage of development of the single age categories (15 +U) and the two year ISU Junior B (15 + 16). This could easily be addressed by a regulation stating the skater has an option of which category to participate.

The LTPAD is clear on the maturational differences between genders therefore from a theoretical perspective it is the superior proposal. For practical reasons SSC may choose the age consistent categories. The Review Team discussed age categories in light of the LTPAD model and recommend the gender different model as designated on the right hand side of the table below:



Two Models of Age Categories

No Gender Distinction			Gender Distinction	
Male	Female		Male	Female
6 to 9	6 to 8	FUNdamentals	6 to 9	6 to 8
9 to 11	8 to 11	L2T	10 to 12	9 to 11
U12	U12	T2T pre PHV B	12 +U*	11 +U*
U13	U13	T2T pre PHV A	13 +U*	12 +U*
U14	U14	T2T post PHV B	14 +U*	13 +U*
U15	U15	T2T post PHV A	15 +U*	14 +U*
15 to 16	15 to 16	ISU Junior B	16 or (15 to 16)	15 to 16
17 to 18	17 to 18	ISU Junior A	17 to 18	17 to 18
19 to 20	19 to 20	Neo Senior B	19 to 20	19 to 20
21 to 23	21 to 23	Neo Senior A	21 to 23	21 to 23
24+	24+	Senior	24 +	24 +
30+	30+	Masters 30	30 +	30 +
35+	35+	Masters 35	35 +	35 +
		Etc.	Etc.	Etc.
		Master 85	85 +	85 +

- 'Active Start' stage of development is intentionally left out because of the recommendation of no formal competition.
- The designation L2T stands for 'Learning to Train' stage of development
- The designation T2T stands for 'Training to Train' stage of development
- Pre and post PHV stand for the periods before and after Peak Height Velocity
- * The designation for L2T and T2T is an age with an addition '+U'. The later is a provision to allow early maturers (physically, psychologically and socially) who have appropriate performance scores to compete against older children. (e.g. 14 +U means 14 and under)
- U15 means less than 15 years of age at the critical date.
- Active for life categories are grouped as + categories so that individuals who choose against skaters who are younger and fitter may be recognised for their achievements within that context and promote meaningful competition.
- For the younger ('FUNdamentals' and most of the 'Learning to Train') stage of development the table reflects different gender categories but there is no need for gender specific events.
- 'Training to Train' developmental stage categories are denoted age and under (e.g. 15 +U) to allow for early maturers (physical, psychological and social) who have appropriate skating performances to compete against older skaters
- All categories assume ability grouping within the category while respecting the designated distances.
- The age categories are labelled with stage of development titles to focus on the importance of the LTPAD model especially on providing developmentally appropriate activities and program.

4. Nature of Feature Events and Competitions

SSC's current competition structure for Long Track and Short Track is based primarily on an age class system with two year windows. National championships start at midget (age 10 to 11) and continuing in two year age windows until senior (over 17). For elite athletes there is also the opportunity to compete in ISU junior (18 and under as of July 1st) and senior competitions (over 18). There is a period of overlap with both SSC age categories and ISU age categories. Finally there are national master championships with five year windows starting at age 30.¹ In addition to these national championship age categories SSC has three age classes cradle (under 6), pee wee (ages 6 to 7 and bantam (ages 8 to 9). SSC recognizes national records for all age classes except cradle. At regional levels many competitions are based on an ability meet format which groups skaters into

As self-concept is developing, events/competition must be meaningful and fair.

groups of 10 to 15 based on their performance level. Other feature events are evolving such as a skill format that includes events linked to skill development and testing, relay only competitions and the ISU has a formal team competition.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
7. Utilize the basic characteristics identified in the LTAD and other literature to define the event/competition objectives for each stage of development.
8. Utilize the basic characteristics identified in the LTAD and other literature in the selection of event/competition activities and skills for each stage of development.
9. Success defined and celebrated in relation to the goals and objectives of the stage of all participants.

The following are developmental constructs related to the events and competitions section:

- There must clear enunciated objectives for each competition related to the relevant stage of development objectives.
- The way competition results are used must be considered in an athlete's long term development plan.
- Sport needs to offer a strong social environment during all stages of development.
- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Team activities should be considered as a proactive approach to declining participation trends especially during puberty.
- Competition can be categorized into three types: "Performance Competitions", "Developmental Competitions" and "Simulation Competitions" based on the objectives for the competition and how the competition results are used.
- Periodization and the competition calendar must be taken into consideration in the planning of feature events and competitions.
- The competition calendar must consider periodization for each stage of development.
- The competition calendar must consider life style and personal development factors such as education and examination schedules.
- Selection policies and championships must be compatible with each stage of development.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local levels for all stages of development.

¹ For a detailed description of the national championships see *Speed Skating Canada, Procedures and Regulations* section K p 24 to 44.



4.1 National Championships, Competitions, Periodization and Preparation

Age for National Championships:

One of the most controversial issues SSC has addressed over the years at Annual General Meeting's is the appropriate age for national championships. The challenge of this section is to identify the appropriate events and championships based on the data and conclusions from the LTPAD and related developmental material. The Review Team considered the objectives for each stage (see Table 1) and the developmental constructs include anatomical, physiological, cognitive and social constructs in making the following recommendations:

One of the most controversial issues SSC has addressed over the years at Annual General Meeting's is the appropriate age for national championships.

Developmental recommendations age for national championships:

- a) SSC to support and promote a continuum of competition including new SSC Regional Competitions focused on the 'Training to Train' age categories (males 12 – 16 and females 11 – 15).
- b) The 'Learning to Compete' stage of development (males 16 and females 15 years) be the initial SSC National Championships.
- c) Participation in International events must be based on developmental principles.

Ability Meet Format:

The ability meet format is recognized as a very suitable format for athlete development. The current model groups solely by performance (usually seed times in specific distances). Based on the construct that athletes at each stage of development should be racing specific distances (as defined by time windows) it is important that athletes race developmentally appropriate distances in ability competitions. To adhere to the LTPAD model grouping by performance without considering the developmentally suitable distances would be inappropriate.

To adhere to the LTPAD model grouping by performance without considering the developmentally suitable distances would be inappropriate.

Developmental recommendation ability meet format:

- d) For ability format the primary grouping should be based on the developmentally appropriate distances for each stage of development (seeding by performance in each appropriate distance).

Personal Bests and Records:

While performance time is an essential element of speed skating especially ISU Long Track, it is not the only measure of performance. For the early developmental stages the objectives are focused on physical literacy and skill development. It is only during the 'Training to Train' stage of development that fitness becomes the primary priority.

Personal bests and records have been an integral part of speed skating. If one accepts the formative/summative distinction¹, the issue of how the results are interpreted and used becomes a critical consideration. For example, times such as season best or personal bests could have a formative and reinforcing value. However, if times are used for selection to a national championship, or to set records the times have a summative function. If the objective of a stage is to develop physical literacy and speed skating skills, these factors should be the primary basis for recognition. In speed skating performance as measured by time is important but only within the context of the stage of development.

At the early stages basic skating bio-mechanics, strategy and tactics are more important than records.

Records, seasonal bests and personal bests are acknowledged as good motivational tools but records affect only a very small group of individuals and require considerable administrative time to collect and manage. Records are also biased by weather and ice conditions. Slow/fast ice often depends on altitude, the arena, sun, temperature and wind as well as the level of competition. Further, records at these early stages are normally established by excellent skaters who are likely early maturing individuals. At the early stages ('FUNdamentals', 'Learning to Train' and 'Training to Train') basic skating bio-mechanics, strategy and tactics are more important than records. Given this, the value of records during these early stages is questionable. Personal bests and seasonal bests are a useful motivational tool but primarily for personal improvement and not to rank individuals.

SSC's qualification criteria for Long Track Mass Start national championships allow for the quota per branch to be raised from four to six based on times.² Many branches base their own selection policy on seasonal best times. These standards have been selected because they are perceived as objective but the comments on the quality of competitors, quality of ice and weather are valid reasons reason to question the assumption of objectivity.

Based on the LTPAD and the above arguments, the Review Team concluded records were meaningful at the 'Learning to Compete' stage of development and older. However, given the focus on the long term development of the skater, stage objectives and the time and effort required to maintain records, it is concluded that the LTPAD does not support keepings records at younger ages.

Developmental recommendations personal bests and records:

- e) The 'Learning to Compete' and older developmental stages SSC recognize records.
- f) In the 'Training to Train' developmental stages' and younger SSC should not recognize records.
- g) Personal bests and seasonal bests are good motivational tools but primarily for personal improvement and not for ranking until the 'Learning to Compete' stage of development.

¹ If competition is a test or a form of evaluation then terms used in educational evaluation theory may be useful in considering the role of competition in long term athlete development: "Summative evaluation is a method of judging the worth of a program at the end of the program activities. The focus is on the outcome." and "Formative evaluation is a method of judging the worth of a program while the program activities are forming or happening. Formative evaluation focuses on the process." Formative evaluation is similar to 'Competition Training' when competition is used as a part of training process ('Competition Training'). Results would only be used within the context of a program and never for ranking or selection. This is not true for many of the SSC competitions (e.g. in LT- six ranking competitions and two team trials). In 'Actual Competition' the results are summative for selection or to declare champions. This applies to national team rankings, team national team selection and many branch selection policies. (from Role of Competition section of Developmental Constructs section).

² Speed Skating Canada, Procedures and Regulations K2-101 b)



Participation Standards:

It is recognized that there likely is a need to regulate the number and quality of skaters at regional and national championships through participation standards. SSC current regulations use number of skaters per branch in Short and Long Track Mass Start competitions with a Long Track clause that allows more skaters based on percentage of national records for long track¹. Based on the above discussion regarding times and stages of development an alternate method is proposed. Branch quotas provide both incentive and an opportunity for all the branches to participate and this should be maintained. But it is also important to recognize excellence. The ISU qualification systems for World Cups and World Championships are based on a minimum number from each member federation plus extra skaters based on last year performance². The later approach is recommended.

Developmental recommendation participation standards:

- a) For entry to regional and national championships a quota based on a minimum number of skaters per branch plus others based on performance at last year's relevant event.

For example, provincial success in an age category one year, could qualify additional skaters for the category the following year.

4.2 Multi-Sport and other International Event Issues

There is opportunity for skaters ('Training to Compete' and older) to participate in international competitions and multisport games. There are a number of multisport events including Olympic Games, FISU Games, Canada Winter Games, Arctic Winter Games and provincial/territorial Games with Youth Olympics also being discussed. There are also all the ISU World Championships. Internationally the ISU supports the World Cups and has introduced a Long Track Junior World Cup. SSC also participates in North American events.

As a sport organization driven by international success and the holistic development of athletes participation in these events has to be rationalized with respect to how they contribute to the athlete's long term development. These events are also important for the socio-cultural benefits attributed to sport festivals that young skaters should experience. All these opportunities will be a challenge for SSC to make good LTPAD developmentally appropriate decisions with respect to deciding who to send and even which events to support.

A rationalization and logic consideration of how these serve long term athlete development is necessary. This should allow participation in appropriate formats. The benchmark of the LTPAD should be used to make decisions.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

2. Be a full partner in the Canadian sport delivery/youth development system.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

As a sport organization driven by international success and the holistic development of athletes participation in these events has to be rationalized with respect to how they contribute to the athlete's long term development.

¹ Speed Skating Canada, Procedures and Regulations K2-101 b)

² International Skating Union, Special Regulations and Technical Rules Speed Skating and Short Track Speed Skating 208 and 281 and International Skating Union Communications: 1501, 1517, 1518, 1527 and 1539.

The LTPAD Objectives for the stages of development are:**'Learning to Train'** (Males 9 to 12 and females 8 to 11)

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

'Training to Train' (males 12 to 16 and females 11 to 15 (age ranges are PHV dependent)

- Building the engine and sport specific skills (*Find Your Edge*).
- Build and aerobic base, develop speed and strength towards the end of f the stage and further develop and consolidate sport specific skills (*Sport for Life*).

'Learning to Compete' (males 16 to 18 and females 15 to17)

- Optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).

'Training to Compete' (males 18 to 21 and females 17 to 21)

- Further optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Optimizing the engine and learn to compete (*Sport for Life*).

'Learning to Win' (ST males 21 to 23 and ST females 21 to 23) (LT males 21 to 25 and LT females 21 to 25)

- Maximizing the engine and speed skating specific skills and fitness (*Find Your Edge*).

'Training to Win' (ST males 23+ and ST females 23+)(LT males 25 + and females 25+)

- Further maximizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Podium performances (*Sport for Life*).

Olympic Movement:

At the Olympics Games elite international athletes should compete. Participation is appropriate for athletes in the 'Learning/Training to Win' stages of development. While a high profile elite event, these games also have a major socio-cultural aspect. Because of the high profile of these events they also are a primary basis of the Canadian perception of speed skating. Some younger athletes may qualify and should compete.

While a high profile elite event, these games also have a major socio-cultural aspect.

Developmental recommendation Olympics:

- a) Participation in the Olympic Games is appropriate for the 'Learning/Training to Win' stages of development.



FISU Games:

These games are well positioned in the athlete development pathway and a good stepping stone for athlete and social cultural development. The Review Team recommends SSC participate for development reasons and to signal the importance of higher education. However the FISU education requirements are minimal. To signal the importance of education the Review Team recommends SSC have educational requirements that are more stringent than the FISU Games requirements.

Developmental recommendation FISU Games:

- b) SSC have educational requirements that are more stringent than the FISU Games educational requirements.

Canada Winter Games:

The level of competition at the Canada Winter Games is appropriate for the 'Learning/Training to Compete' stages. The Canada Winter Games provide experience in a multi-sport games environment to a large number of participants and also provides social/cultural development opportunities. Like the Olympic Games they often play a major role in the perception of speed skating in a branch. These games provide the recognition and reward of making a provincial/territorial team at a nationally recognized event, and if used wisely, can be a catalyst for the development of the sport at the provincia/territorial level. Due to the quadrennial nature of the Games, skaters are either favoured or discriminated against based on their birthdates. To some extent, the event is a birthday lottery. Given this, the quality of events in the SSC domestic calendar and the four year cycle, there is only a limited benefit from the racing in the event itself.

The minimum age based on the LTPAD model would be the ages for 'Learning to Compete'. It also must be compatible with the ages for national championships. Therefore the ages recommended are the ISU Junior A and B ages.¹ It was agreed that skaters who have represented Canada in ISU senior events should not participate in the Canada Winter Games.

The Review Team considered the eligibility of SSC athletes who have represented Canada at World Junior Championships for Canada Winter Games. It was agreed that they should be eligible to attend. The Review Team suggests that this should be considered by national coaches, personal coaches as part of each individual athlete's long term development plan.

Developmental recommendations Canada Winter Games:

- c) For Canada Winter Games the ages recommended are the ISU Junior A and B ages.²
- d) Skaters who have represented Canada in ISU senior events not be permitted in Canada Winter Games.
- e) Skaters who have represented Canada in ISU Junior events should be permitted in Canada Winter Games.

Provincial/Territorial Games:

Provincial/Territorial Games allow significant numbers of athletes to participate in multi-sport events. They have socio-cultural value and often provide opportunity for athletes who otherwise would never experience the games environment and perhaps even the reward of making a team. In some provinces these occur every two years so the problem of accessibility due to birth date is not as great.

Developmental recommendation Provincial Games:

- f) Participation in Provincial/Territorial Games is appropriate for the 'Training to Train' or 'Training to Compete' stage of development.

¹ The ISU Junior age categories are B (15 and 16) and A (17 through 19) as of July 1 st preceding the competition (ISU Rule108).

² The ISU Junior age categories are B (15 and 16) and A (17 through 19) as of July 1 st preceding the competition (ISU Rule108).

4.3 Junior Participation at International Events

Participation in National Selection and International events:

The LTPAD model creates an opportunity for SSC to review younger developing athlete's participation in international events with goal supporting the athlete's long term development both as a skater and a person. One challenge is to insure programs maintain focus on long term development of physical attributes, sport skills and education. The demands of international competition can compromise these with tapering for early trials, travelling and competing every week as is imposed by the international schedule. Focusing on development should help athlete long term development and prevent premature athlete burnout.

One challenge is to insure programs maintain focus on long term development of physical attributes, sport skills and education

For junior athletes participation in senior international events must consider effects on their long term development, meaningful competitions experience, life style and personal factors such as education. Limiting participation in early team trials will reinforce the value of fall domestic competitions. It also should enable young athletes to focus on their first years of post secondary education by not imposing a competition schedule which prohibits them from taking at least a minimum of a part-time course load.

It also should enable young athletes to focus on their first years of post secondary education by not imposing a competition schedule which prohibits them from taking at least a minimum of a part-time course load.

Developmental recommendation participation in national selection and international events:

a) ISU junior age skaters not be permitted to participate in Fall World Cups or related selection events.

World Junior Championships:

Participation at an event like World Juniors requires maturity and experience to ensure it is both a good experience and meaningful competition. During the 'Learning to Compete' stage of development athletes are introduced to national level competition. This stage emphasises learning to compete. Optimal development requires some progression in level of competition. The travel and competition experience gained in the 'Learning to Compete' stage should provide the minimum experience to prepare the athlete for competition. The next stage of development is 'Training to Compete' stage of development, which is essentially the same age as the ISU Junior A category.

Historically the most skaters who qualify for World Junior Championships are from the 'Training to Compete' stage of development. In this stage of development the majority of athletes (95%) will have completed their period of critical growth and development. They also will have had some experience competing at the national level. Participation in World Junior Championships by younger athletes is not critical to later success.

To ensure that these experiences best serve the developmental needs of skaters; based on their maturity and position in the LTPAD model; it is recommended that SSC only send Junior A athletes to World Juniors.

Developmental recommendation ISU World Junior Championships:

b) SSC only send Junior A athletes to ISU World Junior Championships.



4.4 Junior Specialization:

In 2009 the ISU added a single distance format for the ISU Junior World Championships¹. The objectives for the 'Learning/Training to Compete' stages of development are to optimize the engine, speed skating specific skills and fitness while the objective for the 'Learning/Training to Win' stage is podium performance. The trade off is between long term development and event specific preparation. Early specialization (and implied podium emphasis) has potential to detract from each athlete's overall long term development. It is noted that many of SSC senior athletes have changed their focus from sprint distances to all round and visa versa later in their careers. At this stage long term development is more important than specialization; therefore it is recommended that SSC selection for World Junior Championships be based on all-round performance.

The objectives for the 'Learning/Training to Compete' stages of development are to optimize the engine, speed skating specific skills and fitness while the objective for the 'Learning/Training to Win' stage is podium performance

It should be noted that for Short Track SSC selection is in an all-round format.

Developmental recommendations junior specialization:

- a) SSC Long Track selection for ISU World Junior Championships be based on all-round performance.
- b) SSC Short Track maintains the all-round selection format.

Junior World Cup:

This is a new Long Track event and SSC did not participate in the initial year. Participation would have to be justified within the LTA/PD model. See Junior Specializations section above.

Developmental recommendation junior World Cup:

- c) Participation in ISU Junior World Cups would have to be justified within the LTPAD model.

¹ International Skating Union, *Special Regulations and Technical Rules Speed Skating and Short Track Speed Skating*, 283.

4.5 Stage Specific Feature Events and Competitions

Training and Competition Guidelines:

The *Find Your Edge* and *Sport for Life* documents¹ include specific recommendations on the number of competitions, season length and amount of training. The role of competition at each stage was discussed in the Developmental Constructs section. The amount of competition at each stage of development and the concepts of periodization, tapering and peaking at stage must be a continuum supported by the objectives and developmental data for that stage. See Tables S, T, and Z for specific concepts regarding training/competition ratios and number of competitions per year for each stage of development. Specific recommendations will be made for each stage of development

The amount of competition at each stage of development and the concepts of periodization, tapering and peaking at stage must be a continuum supported by the objectives and developmental data for that stage.

Role of Competition Developmental Constructs

- Competition can be categorized into three types: “Performance Competitions”, “Developmental Competitions” and “Simulation Competitions” based on the objectives for the competition and how the competition results are used.
- There must clear enunciated objectives for each competition related to the relevant stage of development objectives.
- The way competition results are used must be considered in an athlete’s long term development plan.

Periodization:

The *Find Your Edge* and *Sport for Life* documents¹ include specific periodization recommendations for each stage.

With SSC short season (October to March). Only a single periodization is possible. However it is possible to have at least two tapered peaks in that season. A peak implies preparing for specific important competition both mentally and physically tapering then returning to more general training. The more general training would focus on long term development.

¹ Canadian Sport for Life Long-Term Athlete Development Resource Paper V2, Canadian Sport Centres and’s *Find Your Edge* SSC’s Long-Term Athlete Development Plan ,Speed Skating Canada.



'Active Start' (0 to 6 yrs)

The focus at this stage is physical literacy and not competition.

The LTPAD Objectives for the 'Active Start' stage of development is:

- Learn fundamental movements and link them together into play (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Children's ability to focus on dynamic issues is limited until they reach late puberty.
- Competition requires ability to analyse performance. Until early puberty, competitions should be managed so children are able to analyse their success and failure.
- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.
- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Developing physical literacy and physical capacity take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- All activity to be Fun based with no recommendations for training/competition ratios, periodization or number of competitions per year.

Developmental recommendations in the 'Active Start' stage of development:

There would be no formal competition.

- a) Racing should occur at practice and be in games and relays for fun.
- b) If 'Active Start' (cradle) races are included at a local competitions every skater should receive the same reward and rewards such as tile champion, ribbons and medals are not appropriate.

'Fundamentals' (males 6 to 9 yrs and females 6 to 8 yrs)

For the 'Fundamentals' stage of development, speed skating (not practice, training or work outs but simply speed skating) develops physical literacy and at the same time promotes skating as an attractive and good life time activity.

The LTPAD Objectives for the 'Fundamentals' stage of development are:

- Basic movement skills (*Find Your Edge*).
- Learn all fundamental movement skills and build overall motor skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Children's ability to focus on dynamic issues is limited until they reach late puberty.
- Competition requires ability to analyse performance. Until early puberty, competitions should be managed so children are able to analyse their success and failure.
- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.
- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Developing physical literacy and physical capacity take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- For the 'Fundamentals' stage of development, all activity to be Fun based with no periodization and 0 to 6 competitions per year.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' and 'Learning to Compete' stages of development.

Developmental recommendations in the 'Fundamentals' stage of development:

- Events should be primarily local.
- Activities should focus on physical literacy with limited traditional racing.
- Events should be in a skill (competition) format and should include some traditional speed skating races (age appropriate distances).
- Games and relays should be a featured and significant component of events.
- Season would be 22 to 24 weeks with two 8 to 12 week sessions.
- All activity to be fun based with no periodization with 0 to 6 competitions per year.



'Learning to Train' (Males 9 to 12 yrs and females 8 to 11 yrs)

The 'Learning to Train' stage of development represents the primary Window of Opportunity for skill. In this stage of development competition starts to become a priority. Skater participation rates begin to rapidly drop off towards the end of this stage for males and immediately following the stage for females. It is important that the primary emphasis focus on skill development and that the social environment be as positive as possible.

The LTPAD Objectives for the 'Learning to Train' stage of development are:

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Pre-puberty stages of development have no need to have gender specific races/events/competitions.
- There is a significant decline in participation from the start to the end of puberty.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Children's ability to focus on dynamic issues is limited until they reach late puberty.
- Competition requires ability to analyse performance. Until early puberty, competitions should be managed so children are able to analyse their success and failure. Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.
- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Developing physical literacy and physical capacity take precedence over competition, periodization and the competition calendar for the early stages of development ('Active Start' to 'Learning to Train').
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' and 'Learning to Compete' stages of development.
- At 10 years of age children reach a stage where team sports are important.

Developmental recommendations in the 'Learning to Train' stage of development:

- i) Events and competitions should be in an ability format.
- j) Events and competitions should be geographically close, primarily within their branch or neighbouring branches.
- k) Events and competitions at least 50% of the races should be in traditional counter clockwise racing format. Other activities would include clockwise and straight line racing.
- l) Formal relays and other team competitions should be featured and significant components of events.
- m) Season would be 22 to 29 weeks.
- n) 70% training and 30% competition (competition includes competition specific training¹).
- o) Single periodization and 4 to 8 developmental competitions per year with no performance competitions².

¹ Competition specific training includes all race specific training. This would include practice races and all competition specific simulations.

² These are defined in the constructs paper

'Training to Train' (males 12 to 16 yrs and females 11 to 15 yrs (age ranges are PHV dependent))

The 'Training to Train' stage of development is the period of rapid growth. There are very large individual differences in physical size, secondary sexual characteristics and physiological maturity, especially between early and late maturers. In general females mature earlier than males. It is also a critical psychological developmental period as independence, self concept and social issues play an important role in each individual's development.

In the Critical Date(s) for SSC Ages and Relative Age section for the 'Training to Train' stage of development two seasons per year were recommended with different critical dates to determine age for each season.

The LTPAD Objectives for the 'Training to Train' stages of development are:

- Building the engine and sport specific skills (*Find Your Edge*).
- Build and aerobic base, develop speed and strength towards the end of the stage and further develop and consolidate sport specific skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Children's ability to focus on dynamic issues is limited until they reach late puberty.
- Until the later stage of puberty children are generally not capable of having a complete understanding of rules and the ability to interpret them.
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Children start to self-actualize with self-expression being important during late adolescence.
- By early adulthood (15 years and older) they have the capacity for self-actualization.
- By early adulthood (15 years and older), there is also a need to be self-directed and independent.
- By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balance with sport.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' and 'Learning to Compete' stages of development.
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- There is a significant decline in participation from the start to the end of puberty.
- The neurological system is almost fully developed when the child starts puberty.
- At 12 years of age children start to have individualized leisure preferences.
- There is a significant decline in participation from the start to the end of puberty
- Team activities should be considered as a proactive approach to declining participation trends, especially during puberty.



Developmental recommendations in the 'Training to Train' developmental stage:

- p) Wherever possible Mass Start (Long Track and Short Track) and ISU time based races be included.
- q) Wherever possible skaters should participate in both Short Track and Long Track events.
- r) Featured events/competitions should be at formal SSC Regional Competition (two or three regions).
- s) Branches should seek to develop comparable meaningful events/competitions for participants who do not qualify for SSC Regional Competitions in this stage.
- t) Competition season would be 22 to 29 weeks as part of a 40 week training season.
- u) 60% training and 40% competition (competition includes competition specific training¹).
- v) Single periodization with two tapered peaks.
- w) Three to six competitions per year with one to two performance competitions each year.

¹ Competition specific training includes all race specific training. This would include practice races and all competition specific simulations.

'Learning to Compete' (males 16 to 18 yrs and females 15 to 17 yrs)

By this stage of development the majority of the individuals have realized at least 90% of their growth and development. It is also a stage where athletes start to make life decisions with respect to school, careers and social environment. For those who aspire to be elite athletes preparation and appropriate competition have to be priorities if they are to achieve their potential.

The LTPAD Objective for the 'Learning to Compete' stage of development is:

- Optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).

The following are developmental constructs related to this stage of development:

- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Children start to self-actualize with self-expression being important during late adolescence.
- By early adulthood (15 years and older) they have the capacity for self-actualization.
- By early adulthood (15 years and older), there is also a need to be self-directed and independent.
- By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balance with sport.
- There will be a transfer from a priority of developing physical capacities to learning through competition from the 'Training to Train' and 'Learning to Compete' stages of development.
- There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the 'Training to Compete' and 'Learning to Compete' stages of development.

Developmental recommendations in the 'Learning to Compete' stage of development:

- x) Major events/competitions are SSC national competitions and trials for SSC Junior Teams.
- y) Participation in training camps and international events must take into consideration the individuals annual and multi-year training programs and other factors such as school.
- z) Competition season would be 22 to 29 weeks as part of a year round training plan.
- aa) 40% training and 60% competition (competition includes competition specific training¹).
- ab) Single periodization with two to three tapered peaks.
- ac) Five to Eight developmental competitions per year and two to four performance competitions each year.
- ad) The SSC National Calendar of events² must carefully consider the Long term development of the athletes especially periodization.

¹ Competition specific training includes all race specific training. This would include practice races and all competition specific simulations.

² Includes national championships, team trials and training camps, national team selection, carding and others such as Canada Cup competitions (also includes equivalent junior events).



'Training to Compete' (males 18 to 21 yrs and females 17 to 21 yrs)

Athletes at this stage of development start competing as senior athletes (SSC over 17 old and ISU over 18 years old). Some have been very successful as junior athletes and at the senior level success is much more difficult to achieve because elite senior athletes are often older and have had more time to develop. Further, skaters are no longer grouped in a two year age band, but compete against athletes who may be ten years or more years older than themselves. Many of these older senior athletes have had considerable experience at the international level. Because of the principle of diminishing returns even personal bests are more difficult to achieve and are less dramatic. The net result is all extrinsic reward and perhaps even rewards are more difficult to achieve. New age classes at the start of the senior career would focus attention on how well each skater is performing compared to athletes at the same stage of their careers.

The LTPAD Objectives for the 'Training to Compete' stage of development are:

- Further optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Optimizing the engine and learn to compete (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balance with sport.
- The ability to compete becomes the focus for periodization and the competition calendar for the later stages ('Training to Compete' and 'Training to Win').
- There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the 'Training to Compete' and 'Learning to Compete' stages of development.
- There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the 'Training to Compete' and 'Learning to Compete' stages of development.

Developmental recommendations in the 'Training to Compete' stage of development:

- ae) Featured SSC events/competitions include national team selections as well as ISU competitions.
- af) Participation in training camps and international competitions must consider the individual's annual and multi-year training programs and other factors such as school and career preparation.
- ag) Competition season would be 36 to 38 weeks as part of a year round training season.
- ah) 40% training and 60% competition (competition includes competition specific training¹).
- ai) Single periodization with an individualized plan for tapered peaks.
- aj) Number of competitions based on individualized plan.
- ak) The SSC National Calendar of events² must carefully consider the Long term athlete development especially periodization.

¹ Competition specific training includes all race specific training. This would include practice races and all competition specific simulations.

² Includes national championships, team trials and training camps, national team selection, carding and others such as Canada Cup competitions (also includes equivalent junior events).

'Learning to Win' and 'Training to Win'

These older senior athletes may also have had considerable experience at the international level. Athletes at the 'Win' stages of development are generally regarded as senior athletes.

The LTPAD Objectives for the 'Learning to Win' stage of development is:

- Maximizing the engine and speed skating specific skills and fitness (*Find Your Edge*).

The LTPAD Objectives for the 'Training to Win' stage of development are:

- Further maximizing the engine, speed skating specific skills and fitness (*Find Your Edge*).
- Podium performances (Sport for Life).

The following are developmental constructs related to this stage of development:

- By late adolescence teenagers are starting to make decision regarding school and career which have to be traded off or balanced with sport.
- 'Competition Training' will be a priority and periodization a critical part of the planning process for the 'Learning to Win' and the 'Training to Win' stages of development.

Developmental recommendations in the 'Learning to Win' and 'Training to Win' stage of development:

- a) Featured SSC events/competitions relate to national team trials and selection competitions as well as ISU competitions.
- am) Participation in international competitions must take into consideration the individuals annual and multi-year training programs and other factors such as school and career preparation.
- an) Competition season would be 36 to 38 weeks as part of a year round training season.
- ao) 25% training and 75% competition (competition includes competition specific training¹).
- ap) Single periodization with an individualized plan for tapered peaks.
- aq) Number of competitions based on individualized plan.
- ar) The SSC National Calendar of events² must carefully consider the long term development of the athletes especially periodization.

¹ Competition specific training includes all race specific training. This would include practice races and all competition specific simulations.

² Includes national championships, team trials and training camps, national team selection, carding and others such as Canada Cup competitions (also includes equivalent junior events).



Summary Table Periodization, Peaking and Number of Competitions

Stage	Periodization (Matrices)	CS4L	Periodization (<i>Find Your Edge</i>)*	Competitive Peaks	Number of Competitions (From Matrices)		
					Simulation Competitions	Developmental Competitions	Performance Competitions
AS	None	None	N/A	None	No recommendation		
FUN	None	None	None	None	Frequent FUN races in Practice	0 – 6	0
L2T	Introduce Single, end of stage	Introduce Single, unique cases Double	Single	1	Frequent FUN races in Practice	4 – 8	0
T2T (Pre-PHV)	Single or Double	Single or Double	Single	2	In training, no number recommended	3 – 5	1 pre XMAS, 1-2 end of season
T2T (Post PHV)	Double 1/ sport or ST/LT		Single	2	In training, no number recommended	4 – 6	1 pre XMAS, 1-2 end of season
L2C	Double 1/ sport or ST/LT	Single, Double of Triple	Double (multiple peaks)	2 – 3	Simulations as per individualized plans	8 – 10 (performance vs. individual determined by individualized plans)	2 – 4
T2C			Double (multiple peaks)				
L2W – ST	Individualised	Single, Double, Triple or multiple for optimal performance	Double (multiple peaks)	As per individual plans			
L2W – LT			Double (multiple peaks)				
A4L		N/A	N/A				

Note: Condensed competitive season in speed skating makes it very difficult to provide a minimum of 2 weeks recovery and 8 – 12 weeks for general and specific preparation to achieve double periodization during the on-ice season without significant adjustments to the competitive calendar complicated by availability of ice and timing of major competitive events on the competitive calendar.

5. 'Active for Life' Recreational Competition, Volunteer, Fitness and Fun Participation

5.1 Introduction

The 'Active for Life' stage of development is not defined by developmental age. It is not addressed in the SSC *Find Your Edge* document and while included in the *Canadian Sport for Life* paper resource only one cursory page is provided. These documents provide no developmental data on aging and physical activity to provide guidance. SSC with 70% membership under the age of twelve years old and two world renowned elite programs (ST and LT) has a rich tradition of success. Emphasis on recreational competition has primarily been at the grass roots (club) level. There are master level age categories and competitions but they are shaped and patterned on the elite models.

The Review Team noted that while this stage was not included in *Find Your Edge* but is a critical part of speed skating and has great potential for growth. The team identified different roles which include volunteering, coaching, officiating, recreation and health skating and competitive racing. With respect to the health and fitness aspects there could be different opportunities such as the ones found in running (road racing and marathons). These running events attract large numbers of participants across age categories and have lead to very socially conscious links to charities as fund raising event.

While the trend across stages of development has been from very general local events to highly specialized international competitions this stage has to be much more eclectic. While SSC has a role in appropriate national events and even international competitions real success will come from much more local and regional opportunities. SSC can play a facilitation role by developing education and resource material for innovative initiatives.

Six of the nine principles apply to this stage of development. Almost all the committees (with exception of the Short Track and Long Track High Performance Committees) have responsibility for this part of the program but they have larger overarching responsibilities. SSC has is no readily identifiable point of sale for this stage of development.

Examples of other sports may provide some guidance. Team sports such as slow pitch softball, old timer hockey and adult soccer are very popular. In track in the 1970's road racing became very popular but the road runners started an independent organization to meet a competitive demand for events for recreational runners and joggers. They have been very successful with races such as 10K runs, half marathons and marathons and have also linked these events to charities and sponsors. Other sports, such as rowing and cross country skiing, have incorporated 'Active for Life' participants in their formal programs. While road runners have longer distances the master rowers race half the distance of senior rowers. Cross country skiing which has longer races has had success with 'Active for Life' racers. There is no clear trend of how to proceed.

The choice SSC can make is to be proactive or reactive. These are adults therefore SSC could be reactive by responding to demand and lobbying. On the other hand if 'Active for Life' is viewed as an opportunity to grow and better serve society SSC can take a proactive stance. The recent growth in popularity of Marathon Skating and Masters Championships provides an opportunity to move forward.

If SSC were to choose a proactive stance there are endless ideas of how to proceed. To emphasize fitness (jogging on skates), one obvious model would be the road runner's races adjust distances to times. Ten kilometre road races take about 35-45 minutes and skating at 50 seconds per lap would be a race of 16-21 kilometres. The speed skating marathon is 100 laps so a half marathon would be 50 laps or 20 kilometres. Short Track has ice quality problems so maybe 5 kilometres would work. Mass Start races would be good. Team events could be developed patterned on the team pursuit and even cross country running.

The fitness, health and jogging solution does not address the fun and social value of recreational racing. What distances should be included is an open question. One final point is that if SSC wants to promote this it needs to consider program options. For example running stores offer jogging and walking clubs where introductory courses and social club type opportunities provide a social environment for training and some assistance with training programs and technique.

While the trend across stages of development has been from very general local events to highly specialized international competitions this stage has to be much more eclectic.



The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles Reflect Speed Skating.
3. Adjust to change in society.
4. Provide a pathway towards personal and sporting excellence for all participants.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.
9. Define and celebrate success in relation to each stage goals and objectives for all participants.

The LTPAD Objectives for the 'Active for Life' stage of development is:

- Smooth transition from an athlete's competitive career to lifelong physical activity and participation in sport. (*Sport for Life*).

The following are constructs/conclusions related to the active for life stage of development:¹

- Sport needs to offer a strong social environment during all stages of development.
- The competition calendar must consider life style and personal development factors.
- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating has to make the demands on volunteers reasonable, equitable and fair.
- Speed skating needs to consider the social and time demands of the sport.

Developmental recommendations 'Active for Life' options:

- a) SSC must decide if SSC wants to invest in 'Active for Life' programs.
- b) Assuming SSC adopts the previous recommendation then SSC assign primary responsibility to a standing committee or strike a new standing committee for recreational skating, health and fitness for the 'Active for Life' stage of development.

¹ A number of the constructs which were focused on specific stages must also be considered at this stage. The stages were simply eliminated from the text.

5.2 Age Categories

In the other stages of development age effects generally make the athlete bigger and stronger. This is not the case as one matures in fact at older ages the opposite is likely to occur. These athletes also have significant life commitments that limit their opportunity to train and compete. In the 'Active for Life' stage the issue is to make the age categories meaningful and fair.

The LTPAD Objectives for the 'Active for Life' stage of development is:

- Smooth transition from an athlete's competitive career to lifelong physical activity and participation in sport. (*Sport for Life*).

The following are developmental constructs related to age categories:

- Competitions and races should be in gender specific categories for the 'Active for Life' stage of development.
- SSC age categories should be consistent with ISU age categories and other international age categories.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local is for all stages of development.

Developmental recommendations in the 'Active for Life' stage of development age categories:

- a) Gender specific categories
- b) Ages categories will be the same for both genders.
- c) SSC age categories will be influenced by international master's regulations.



5.3 Activities and Distances

The Review Team identified different roles which include volunteering, coaching, officiating recreational and health skating and competitive racing. With respect to the health and fitness aspects there could be different opportunities such as the ones found in running road racing and marathons. These events attract large numbers of participants across age categories.

The LTPAD Objectives for the 'Active for Life' stage of development is:

- Smooth transition from an athlete's competitive career to lifelong physical activity and participation in sport. (*Sport for Life*).

The following are developmental constructs related to the activities and distances:

- Windows of Trainability should be a major determinant of SSC competition and event activities for each developmental stage.
- Long and Short Track should be integrated in both training and competition.
- Periodization and competition calendar must be taken into consideration in the planning of feature events and competitions.
- Competitions Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local is for all stages of development.
- SSC distances should be consistent with the relevant ISU distances and competitions for 'Training to Compete' stages of development and older.

Developmental recommendations in the 'Active for Life' stage of development distances:

- a) Competitive distances will be influenced by International masters regulations.
- b) SSC consider enhancing the marathon program for competitive, health and fitness opportunities.
- c) SSC consider more cardiovascular events time linked to cross-country ski events as well as road racing events like 10K races and half marathons.

5.4 Nature of Feature Events and Competitions

Events in the 'Active for Life' stage of development must consider the wide variety of speed skating participation roles including competing, health and fitness as well as coaching, officiating and volunteering.

The following are developmental constructs related to the nature of feature events and competition:

- Sport needs to offer a strong social environment during all stages of development.
- Competition can be categorized into three types: "Performance Competitions", "Developmental Competitions" and "Simulation Competitions" based on the objectives for the competition and how the competition results are used.
- The way competition results are used must be considered in an athlete's long term development plan .
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- The competition calendar must consider life style and personal development factors such as education and examination schedules.
- Competitions and races should be in gender specific categories for the 'Active for Life' stage of development.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local is for all stages of development.
- SSC age categories should be consistent with ISU age categories as well as the LTPAD developmental stages for 'Learning to Compete' stages of development and older.
- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.
- Speed skating can make the sport more accessible by changing equipment and travel norms.

Developmental recommendations in the 'Active for Life' stage of development events and comeptitions:

- a) Training to competition ratio, periodization and number of competitions per year must be based on each individual's desire.
- b) SSC sanctioned, supported and recognized competitions in a variety of formats such as Mass Start, ISU two lane and marathons.
- c) SSC work with the branches to develop health and fitness types of events similar to "fun runs".
- d) SSC be proactive in developing volunteering, coaching and officiating roles and considering them to be participants.



6. Long Track and Short Track (Common and Unique Issues)

Speed Skating Canada has worked hard to become one of the best speed skating nations and a top sport in Canada. It is successful in both Long Track and Short Track speed skating and SSC should strive to maintain this. Many skaters have participated in both disciplines during earlier developmental stages which is good. The decision about when to specialize will cut across a number of LTPAD stages therefore the Objectives for the each stage will have to be considered. The Review Team has concluded that there is little difference in the programs at the 'Active Start', 'Fundamentals' and even 'Learning to Train' stages of development between Short Track and Long Track. There are a number of factors to consider not the least of which is climate and opportunity issues specifically the availability of Long Track facilities. Nevertheless at some stage of development most athletes will have to choose to specialize. However up to that point the program should allow athletes to participate in both disciplines.

Many skaters have participated in both disciplines during earlier developmental stages which is good.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

4. Provide a pathway towards personal and sporting excellence for all participants.
6. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
7. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to Long Track and Short Track:

- The neurological system is almost fully developed when the child starts puberty.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.
- Precision in skills can be achieved due to the relatively advanced neurological development.
- At 12 years of age children start to have individualized leisure preferences.
- Sport needs to offer a strong social environment during all stages of development.
- There must clear enunciated objectives for each competition related to the relevant stage of development objectives.
- There will be a transfer from a priority of developing physical capacities to competition for the 'Training to Train' and 'Learning to Compete' stages of development.
- Long and Short Track should be integrated in both training and competition until the 'Training to Train' stage of development.
- There must be an emphasis and opportunity to develop competitive strategies and skill to meet the basic objective for the 'Training to Compete' and 'Learning to Compete' stages of development.
- Boys and girls should participate together in the same activities and races for the 'Active Start', 'FUNdamentals' and 'Learning to Train'.
- Other formats such as "Ability" or "All Points" competitions could still be useful at branch or local is for all stages of development.
- The skates used at each stage should be suitable for the activities the skaters are doing.

Developmental recommendations Long Track and Short Track:

- a) Up to and including the 'Learning to Compete' stage of development, the SSC Competition Calendar should facilitate participation in both Short Track and Long Track.
- b) While individuals can select Long Track or Short Track at any stage most skaters will likely have selected by the 'Training to Compete' stage of development. SSC planning and programs will only focus on one discipline at the 'Training to Compete' and older stages of development.

7. Equipment and Tracks

Every person who wants to race on skates should have the opportunity to do so in a safe and affordable manner. These issues are shared by the True Sport movement. The issue of physical safety is one of SSC core values, but safety also implies free from harassment or interference with the individual. Fun, while covered under other principles, is the root of SSC's success. Enhanced by its elite classification, speed skating can take positive strides to enhance accessibility.

*Developing Physical Literacy*¹ identifies several underrepresented groups including: aboriginal youth, youth with a disability, girls (especially those from ethnic groups that have not traditionally valued physical activity), and disadvantaged inner-city youth. There are a great many issues regarding accessibility and many of these factors are outside SSC control but others can be addressed. Some within SSC control include economics, personal and social perceptions, type of skates and uniforms. These are included as examples of issues that can be considered to make speed skating as attractive and accessible as possible.

The concept of attractive relates to how the speed skating and the events and competitions are perceived by Canadians. If speed skating is perceived as affordable and attractive the sport will grow.

Enhanced by its elite classification, speed skating can take positive strides to enhance accessibility.

7.1 Specific Skates for Specific Stages

For introductory skating three issues should be considered in identifying appropriate skates. The first is to insure skates are appropriate for the skills the individuals are learning at the skater's stage of development. The next issue is cost, which in itself is a real issue, but is also an accessibility issue. The third issue is the skates should fit the participant.

The four stages of development: 'Active Start', 'Fundamentals', 'Learning to Train' and 'Training to Train' are primarily the responsibility of the clubs and branches SSC has an obligation to make recommendations based on the appropriate principles.

The primary Speed Skate Canada Guiding Principles for Competition considered:

5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to types of skates:

- The skates used at each stage should be suitable for the activities the skaters are doing.
- The skates should be affordable and fit properly.
- Speed skating can make the sport more accessible by changing equipment and travel norms.
- Cognitively participants are children and are not miniature adults during the 'FUNdamentals' and 'Learning to Train' developmental stages.
- Events, competitions and activities should focus on physical literacy as well as speed skating skills during the late childhood stage.
- Activities should account for neurological maturation especially agility, balance, co-ordination and flexibility during the late childhood developmental stages.

¹ *Developing Physical Literacy, A Guide For Parents Of Children Ages 0 - 12, Canadian Sport Centres , p28*



'Active Start' (0 to 6 yrs)

This stage of development is about very basic motor skills which includes skating.

The LTPAD Objective for the 'Active Start' stage of development is:

- Learn fundamental movements and link them together into play (*Sport for Life*).

Developmental recommendations in the 'Active Start' stage of development - skates:

- a) Hockey skates should be used.

'Fundamentals' (males 6 to 9 yrs and females 6 to 8 yrs)

This stage of development emphasizes basic skating skills with an introduction to speed skating.

The LTPAD Objectives for the 'Fundamentals' stage of development are:

- Basic movement skills (Find Your Edge).
- Learn all fundamental movement skills and build overall motor skills (*Sport for Life*).

Developmental recommendation in the 'Fundamentals' stage of development - skates:

- b) Skaters are strongly encouraged to wear hockey-style skates for the safety of the protected blade, suitability for basic physical literacy skills accessibility and ease of maintenance.

'Learning to Train' (Males 9 to 12 yrs and females 8 to 11 yrs)

Direction of push is not easily taught on clap skates. The lack of strength among developing skaters with the desire to hear the sound produced by the clap skate results in a backwards direction push. A fixed blade speed skate forces skaters to push to the side in a proper biomechanical pattern. This is very important with the 'Learning to Train' phase being critical for developing sport specific skills. The cost of clap skates is substantially higher with a clap skate than a fixed blade skate. During this stage of development, there are often kids with clap skates and those without. This would eliminate the 'haves' and 'have not's' of the sport. Skates have to be properly set up for skaters learn skating skills. Clap skates also require more maintenance, tuning and adjustment than conventional fixed blade skates.

The LTPAD Objectives for the 'Learning to Train' stage of development are:

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

Developmental recommendations in the 'Learning to Train' stage of development - skates:

- c) Long blade skates only introduced once skaters have acquired fundamental skating skills.
- d) Skates restricted to fixed blade speed skates.

'Training to Train' (males 12 to 16 yrs and females 11 to 15 yrs (age ranges are PHV dependent)

This is a stage of development with rapid growth and maximal individual differences.

The LTPAD Objectives for the 'Training to Train' stages of development are:

- Building the engine and sport specific skills (*Find Your Edge*).
- Build and aerobic base, develop speed and strength towards the end of the stage and further develop and consolidate sport specific skills (*Sport for Life*).

The following are developmental constructs related to this stage of development:

- Precision in skills can be achieved due to the relatively advanced neurological development.

Developmental recommendations in the 'Training to Train' stage of development - skates:

- e) Clap Skates be introduced once skaters have acquired the necessary strength and technical proficiency.
- f) In the 'Training to Train' stage of development and older, clap skates are acceptable.



7.2 Nature of Uniforms

"Bob Bowman, coach of U.S. swim star Michael Phelps, deplores the idea of young, developing swimmers wearing speed suits, but he encouraged boys to wear a modified version – tight fitting, thigh length Shorts known as jammers – simply because they discourage self consciousness. Bowman and others blame the traditional tiny swim trunks for nothing Short of driving young boys out of the sport. 'I honestly think they were a barrier for getting boys into the sport on the entry level,' Bowman said. 'Jammers have really helped boys with self esteem and body issues'"

Two members of the Review Team with young boys in speed skating raised similar concerns about their own children. In *Find Your Edge* p 43 under emotional development it states that during late childhood ('FUNdamentals' through the 'Training to Train' Stage: "Children are developing their self concept". It is impossible to know the effect of the norm of skin suits for this age on self esteem and body image and if there is an effect on recruitment and retention but it certainly is possible. The retention data suggest the end of the 'Training to Train' stage is where participation rates decline rapidly.

The competition uniform for speed skating is a very aerodynamic close fitting skin suit. These make it quite clear to everyone one's body type and stage of development. While they clearly reveal secondary sexual characteristic they also clearly reveal one's musculature and body composition.

In general speed skating's social environment and competition structure make very positive contributions to self esteem. The skin suits are one aspect that may have a detrimental effect. The Review Team doubts that many skaters wear their skin suits to school or in any other public place. Some skaters wear t-shirts over their skin suits and it is likely to cover-up. At the same time speed skating has an obligation to make races fair and if some children are reluctant to display their body shape in public and choose not to wear a skin suit they will be at a competitive disadvantage. Finally skin suits are expensive and have little other use except to be traded or sold when they no longer fit. Further, a skin suit adds to the cost of skating and is therefore a financial barrier to accessibility.

In general speed skating's social environment and competition structure make very positive contributions to self esteem. The skin suits are one aspect that may have a detrimental effect.

The primary Speed Skate Canada Guiding Principles for Competition considered:

1. Reflect SSC's values and True Sport's principles.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to the nature of uniforms:

- As self-concept is developing, events/competition must be meaningful and fair (i.e. each child must have a reasonable chance to succeed).
- Self-concept should be well established, to be able to interpret the obvious direct comparison of winning/losing.
- Children start to self-actualize with self-expression being important during late adolescence.
- Body image, self-esteem and clothing are interlinked.
- Speed skating can make the sport more accessible by changing equipment and travel norms.

Developmental recommendation nature of uniforms:

- a) For developmental stages up to and including 'Learning to Train', SSC consider regulations and alternate uniforms regarding the clothing in which children practice and compete.

1 *Saskatoon Star Phoenix* Nov 1st

7.3 Facilities and Tracks

In the Developmental Constructs section rationale for smaller tracks was presented based on three sets of data. The first reason was to scale the tracks so they fit into smaller arenas. This is based on two ideas the first safety and the second the ability of organizations to host major championships in their community. The third idea is from a motor learning perspective on specificity of learning. Tracks that are scaled to the size of the athletes allow them to have similar stride patterns to adults on the ISU larger track. The most reliable measure of size is height. Data was also presented on angle of lean which clearly illustrated that on smaller tracks the angle of lean approximates the angle of adult skaters on international tracks.

While these arguments were based on Short Track data the same principles should apply to Long Track ovals. The issue of feasibility must also be considered for Long Track ovals where the human resource demands, costs and environmental sustainability must also be considered. Reducing the size of the oval will dramatically reduce the installation and operating costs (including volunteer time). Weather also plays a role with the harsh climate in many Canadian centres smaller ovals would mean shorter straight aways and tighter corners which makes training in high winds easier. Assuming the athletes train the same volume there would also be more corners with more corner entries and exits on smaller tracks. Finally coaches would always be closer to the athletes. Smaller tracks are recommended for safety, ability to host, specificity of learning and feasibility.

Smaller tracks are recommended for safety, ability to host, specificity of learning and feasibility.

The following are developmental constructs related to facilities and tracks:

- The size of the tracks and ovals should reflect the size and skill of the skaters.
- Speed skating can make the sport more accessible by changing equipment and travel norms.

Developmental recommendations facilities and tracks:

- a) 'Fundamental's stage of development, ST ovals be 75 meters.
- b) 'Learning to Train' and 'Training to Train' stages of development, ST ovals are 100 meters.
- c) 'Learning to Compete' stage of development and older, the Short Track and Long Track ovals meet ISU standards.
- d) SSC provide survey diagrams and sanction 200, 250 and 300m long track ovals.



8. Social Issues

For the sport to succeed, grow, and achieve SSC stated purposes and values it must adjust to changes in society. Traditionally most changes have been reactive but a review of the structure of events and competition is an opportunity to be proactive. Examples of these factors include social changes such as family, human resources including the roles of volunteers and professional staff, virtual communities (social networking), travel costs, carbon footprint and issues such as the preference for certain ages to participate in team events.

For the sport to succeed, grow, and achieve SSC stated purposes and values it must adjust to changes in society. Traditionally most changes have been reactive but a review of the structure of events and competition is an opportunity to be proactive.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles.
2. Be a full partner in the Canadian sport delivery/youth development system.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to social issues:

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating has to make the demands on volunteers reasonable, equitable and fair.
- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.
- Speed skating can make the sport more accessible by changing equipment and travel norms.
- Speed skating programs suited to the developmental needs of individuals can also consider alternative solutions to environmental issues.

8.1 Competition Formats

Speed Skating, especially the branches, has been innovative with regards competition formats. The 'all points' formats, relay competitions and ability meets are good examples. The trends in society with respect to dual income families, volunteerism and the economics of travel provide incentive for speed skating to be even more innovative.

Duration:

Anecdotal information suggests many families are not interested or willing to spend two long days at an event/competition. One of the redeeming factors is many find these days a social event. However for families starting, the duration is more likely a deterrent. Anecdotal evidence is some simply do not come back the next year. Having the young skaters at a rink for two whole days also makes it difficult for them to be involved in other sport and activities. To shorten the time a skater is at the rink the events would have to be focused on a limited band of developmental stages. These events could be focused on specific developmental stages or combined with other stages but at different times in the day or even separate venues.

...many families are not interested or willing to spend two long days at an event/competition.

An argument against this model is it has to be worthwhile to travel or commit to an event. The issue should not be the length of time the participant is at the rink but how much they participate and how good the experience is for them and their families. At a traditional competition most skaters race in four distances often with heats and finals totalling about eight races and a relay for a weekend. However in a more focused competition the beginning skater could participate in the same number of events in much less time. Recent revisions of the competitive structure in some jurisdictions have achieved this with skaters participating in 5-7 events in a 6 or 7 hour time period. If SSC is creative it might be possible to participate even more in less time.

One final argument that has been heard against this is that families would have children in more than one age window and would have to be at the rink all day to accommodate both developmental stages anyway. While this argument is a concern the contrary argument of "why should the family participating in only one developmental stage be required to be at the rink all day both days?" must be considered.

This will be a difficult decision as most of the speed skating families are very used to the all day competitions and perhaps even like the family and social environment. Issues that will have to be considered include the questions: "What about those who have chosen not to have their children involved?" and "What about the upcoming generations of families?"

The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related duration of competition:

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.

Developmental recommendations duration of competitions:

- a) Entry level speed skating events/competitions should be limited to one day per weekend and the duration limited to 4 hours per day.
- b) Entry level speed skating events/competitions should be in blocks of time to keep them active and to keep families engaged.
- c) Events could be in the form of skating festival and could readily be adapted to include children who are not formally engaged in speed skating programs.



Innovative Event Formats: (e.g. Skating Festivals with or without other sports).

Speed skating has focused primarily on a traditional format of competitions with individual races and perhaps relays 'if there is time'. These competitions for the most part have been limited to paid members. At one time local rinks and communities had winter carnivals where anyone could enter fun races and there were whole range of performances opportunities and activities. More important was the opportunity to race on skates.

The LTPAD objectives for the first three stages are well suited to other formats (especially skill events). Participation in multiple sports is also recommended during these developmental stages. Creative formats with other sports or run by speed skating could have many advantages with respect to simply having fun but also could promote the sport and even serve as a recruiting tool.

The primary Speed Skate Canada Guiding Principles for Competition considered:

1. Reflect SSC's values and True Sport's principles.
2. Be a full partner in the Canadian sport delivery/youth development system.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The LTPAD Objective for the 'Active Start' stage of development is:

- Learn fundamental movements and link them together into play (*Sport for Life*).

The LTPAD Objectives for the 'Fundamentals' stage of development are:

- Basic movement skills (*Find Your Edge*).
- Learn all fundamental movement skills and build overall motor skills (*Sport for Life*).

The LTPAD Objectives for the 'Learning to Train' stage of development are:

- Fundamental sports skills including speed skating skills (*Find Your Edge*).
- Learn over all sport skills (*Sport for Life*).

The following are developmental constructs related to innovative event formats:

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- More focused and less time-demanding speed skating events are likely more acceptable.

Developmental recommendation innovative event formats:

- d) SSC consider creative formats for events/competitions such as festivals with or without other sports.

Speed skating has focused primarily on a traditional format of competitions with individual races and perhaps relays 'if there is time'.

8.2 Volunteers

Volunteering is on the decline with fewer people volunteering and more time being required. At the elite level officials and volunteer coaches are participating in more and more competitions being held on weekdays. At the local level finding club and branch executives is becoming more of a challenge. There is anecdotal evidence that more parents would rather pay a fee to opt out of volunteering. This is particularly evident for clubs located in large cities.

Speed skating needs to be proactive to assure the sport remains viable and is sustainable. There are a number of solutions including reconsidering the sport as a business¹, paying for services, restructuring the sport to reduce volunteer demands, etc. While these should be considered, the later must be considered. Speed skating events/competitions are human resource intensive.

Volunteers are very important resource and the roles of and demands should be studied on the basis of cost effectiveness.

Speed skating needs to be proactive to assure the sport remains viable and is sustainable.

Times and Timing an example:

One suggestion is to consider the cost of timing skaters in every race. The rationale for the number of timers is based on spring driven sweep stop watch technology for records. The reading of watches and recording of times also slows a competition down meaning fewer races per hour.

The ISU rules only require three timers per pair but the SSC tradition is to have three per skater. The ISU require manual times to be a back up for electronic times and especially for records. But in competitions where times are used for personal bests and records is this cost effective, particularly where electronic timing is available? In track and field competitions often use only electronic times stopping the race if the timing malfunctions. Many electronic timing systems also allow for a manual stop which can be triggered by the same operator as the electronic system.

Many Short and Long Track Mass Start competitions use times to advance from heats or semi finals to the next level. However there are other models with placements used to advance skaters. One could argue in Short Track that the use of times to qualify to the next level of even national championships is a detriment to learning Mass Start skating strategies.

Having seven to thirteen timers at competitions does provide better manual times, but is it cost effective? If minimum wage was paid the costs would dramatically change the entry fees. Coaches time skaters, could we not accept their timers for personal bests? Could we rely on electronic timing? (An aside running electronic timing systems requires a very specific set of skills and perhaps this should be a paid position). Finally as electronic timing becomes more prevalent we are adding to the volunteer time cost of a competition. Ironically technology is adding to the volunteer time demands instead of reducing the demands.

As society changes the sports that are pro-active are more likely to be effective in the future.

Times and timing is only one example asking the question of how we use volunteer time. Many sports such as gymnastics, figure skating and swimming follow a business model where the clubs are either private for profit businesses or not for profit clubs have hired profession a staff to deal with much of the business of running the sport. As society changes the sports that are pro-active are more likely to be effective in the future.

¹ *The Business of Sport Business Practices Manual "Changing the Culture of Sport in Canada, True Sport Club Excellence.*



The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).

The following are developmental constructs related volunteers:

- Speed skating needs to make sure the volunteer experience is satisfying and appropriately rewarded.
- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating has to make the demands on volunteers reasonable, equitable and fair.
- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.

Developmental recommendation volunteers:

- a) At all stage of development, SSC consider effective use of volunteer time.
- b) When electronic timing is appropriate and readily available, SSC consider relying solely on electronic times.
- c) At the entry stages of development, SSC consider either not recording manual times or a much more cost effective method of timing.

8.3 Talent Identification

There are two aspects of talent identification speed skating can consider. One being identifying and supporting skaters with talent while the other is to provide athletes from other sports with the opportunity to try speed skating (such as “Own the Podium”). Recent performances by late entry athletes such as Cindy Klassen¹ and Chad Hedrick² have demonstrated the acquisition of fundamental skills and fitness through other sports can be transferred to speed skating and efforts should be made to allow athletes to make this transition. Promoting late entry would also have significant benefits to growing the ‘Active for Life’ component of speed skating. As speed skating is a late developing sport, there is little evidence to support the identification of talent until after the onset of PHV.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

2. Be a full partner in the Canadian sport delivery/youth development system.

Developmental recommendation talent identification:

- a) SSC should promote opportunities for late entry into the sport.

1 Winner of 6 Olympic medals and winner of multiple World Cup and World Championships, began speed skating at age 17 but had acquired skills in other sports including ice hockey

2 Winner of 3 Olympic medals and multiple World Cups and World Championships, began ice speed skating at age 25 after having dominated in-line skating for nearly a decade



8.4 Collaboration with Other Related Sports

At the 'FUNdamentals' and 'Active Start' stages of development, participation in three sports is recommended. While there are examples of sports working together, they are likely the exception. In any sports 'learn to programs' have the dual purposes of recruitment and making money. There is almost a capture the participant mentality.

Working in concert or cooperatively with other sports has potential. The *Developing Physical Literacy* resource paper identifies four key areas which form the basis for developing physical literacy: 'On the ground', 'In the water', 'On snow and ice' and 'In the air'. As the *Canadian Sport for Life* philosophy takes hold, sports which pro-actively about working collaboratively to offer ignition programs which introduce these fundamental skills across multiple sport will have a distinct competitive advantage. "Learn to" programs are certainly a good place to orient participants and their parents to speed skating while providing a valuable service to the community. They also can be a source of funds. In some programs speed skating clubs pay athletes to teach and lead. These could be part time employment or offset higher level fees and costs. If done right it could be an ideal place for leadership development with appropriate mentoring, supports, review and education. One example is the US Figure Skating program includes six speed skating units as part of a fifty-eight unit *basic skills program*².

If done right it could be an ideal place for leadership development with appropriate mentoring, supports, review and education.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles.
2. Be a full partner in the Canadian sport delivery/youth development system.
3. Adjust to change in society.
5. Be meaningful for all participants (skaters, coaches, officials, parents, volunteers).
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to collaboration with other sports:

- Speed skating needs to consider ways to offer programs in a more efficient manner.
- Speed skating needs to consider the social and time demands of the sport.
- More focused and less time-demanding speed skating events are likely more acceptable.

Developmental recommendation collaboration with other sports:

- a) Clubs, Branches and SSC consider collaborating with other sports especially at the introductory level.

1 *Developing Physical Literacy, A Guide For Parents of Children Ages 0 to 12*, Canadian Sports Centres, 2008, p. 5.

2 US Figure Skating, Basic Skill Program

8.5 Carbon Foot Print, Travel Costs and Other Environmental Issues

There are a number of environmental issues SSC can consider. For example is the amount of paper at an event. Another example is the competition protocol or results sheet which can easily be posted on line in accessible formats. Even at the venue it is possible to display the

The paper issue is only an example of one way to address environmental concerns.

schedule, the next round of racing and results on monitors. Projectors could be used for large sized display. The paper issue is only an example of one way to address environmental concerns.

Another environment issue is the amount and type of travel. Travelling long distances in personal cars may be convenient but not ecologically efficient. Scheduling more compact events might allow for same day travel. Recent sport related car and van fatal accidents suggest it might be safer as well to use professionally driven buses. In the summer and fall of 2008 travel cost escalated with high gasoline prices and fuel surcharges on air line travel. These have been reduced but should stimulate speed skating to consider the costs of travel. This is of course an accessibility issue.

Another environment issue is the amount and type of travel. Travelling long distances in personal cars may be convenient but not ecologically efficient.

The primary Speed Skate Canada Guiding Principles for Competition considered are:

1. Reflect SSC's values and True Sport's principles.
2. Adjust to change in society.
6. Be fun, safe, attractive and accessible to people of all ages, of all skill levels and from all different backgrounds.

The following are developmental constructs related to the nature of uniforms:

- Speed skating programs suited to the developmental needs of individuals can also consider alternative solutions to environmental issues.
- Speed skating can make the sport more accessible by changing equipment and travel norms.

Developmental recommendation carbon footprint and other environmental issues:

- a) SSC consider measures to address environmental concerns.
- b) SSC can make the sport more accessible by encouraging more local and regional competitions.
- c) Regional Championships could be an advantage with respect to travel costs.



APPENDIX 4 IDEAS FOR ACTIVE FOR LIFE

The Competition and Events System Review identified that there was significant potential for speed skating to provide value added to participants, be they skaters, coaches, officials, volunteers or the general public by developing vibrant programs within the active for life stage. While the formal recommendation of this review team is that SSC must make a formal commitment to this stage and subsequently strike an ad hoc committee to develop specific strategies, many ideas were discussed by the review team.

Recognising the diversity of participant interest and needs of participants in the Active for Life stage, these ideas have been described within four primary themes. Many ideas within a theme overlap and could effectively be combined into a single event like a skating festival.

- Competitive Skating** Activities which are built on the foundation of traditional racing and competition and intended primarily for participants who engage in specific training for participation.

- Racing on Skates** These types of activities would be similar to competitive skating activities, but would target the population at large, allowing for groups or individuals to come measure their speed on skates be it through a corporate challenge, a 10km fun skate or a skate-a-thon which could be linked to a local charity.

- Health** These types of events would focus on the health and well being of Canadians at large. They would seek to engage people in the activity of skating as a means to stay fit and enjoy time with family and friends, while they may tie into Competitive skating or Racing on skates their would be no expectation that these types of events seek to offer races, but rather emphasise the pure joy of skating.

- Expert Participants/
Volunteers** Speed skating has been long known as a family sport, and many people actively participate in the sport without ever going to the start line, or even lacing up a pair of skates. These people include club administrators, officials, coaches, skate techs, rink side volunteers and the countless other people who give their time to support the operation of clubs and the hosting of events. There is an opportunity to develop significant skill and expertise in executing these tasks. Many people choose to participate in speed skating through these activities and it is important that activities for these individuals be integrated into everyday programming to make involvement with speed skating a leisure activity of choice for many.

The ideas presented are primarily derived from three brain-storming sessions. Two of the sessions were held by the Competition and Event System Review Team during their face to face meetings and one was held during the Atlantic Canada Development Strategy Meeting in April of 2008.

Competitive Skating

- Develop opportunities to compete for skaters no longer pursuing national or international performance objectives
- Emphasise long events over sprint events for adult competitors
- Need teenage/young adult and adult active for life activities, these may not be the same
- Marathon skating
- Dualthon, triathlon events – as individual or team
- Mixed gender racing
- Racing against comparable ability, mixed gender
- Provide opportunities for recognition – achieving personal bests, event records
- ISU distances – World, Cdn. Masters events
- Social activities need to be part of the program
- Accommodate other roles during competition
- Proper racing groups
- Need appropriate medical and safety guidelines adapted to the type of participant (personnel, equipment, training)

Health

- Fun skates
- Innovative locations, lake tracks, Rideau Canal, etc...
- Opportunity to train for the fun of training
- Cross-training for other sports
- Use of times as a measure of improvement
- Recreational skate clubs (masters clubs, Marathon Clubs)
- Charity events and skate-a-thons
- Family days/events
- Connection with youth
- Provincial health and recreation programs
- Wider vision of clubs (cradle to grave)
- Opportunity for former skaters to maintain a connection to the sport
- Partner with other sports for multisport events
- Evening skates for spectators and volunteers after the events when the mats are left on
- Opportunities to physically active – organised group activities
- Consider running model of fun races, fundraising for activities – partnering with other parts of our society
- Linkage with in-line skating

Racing on Skates

- Partner with other sports for multisport events
- Provide opportunities to experience racing on skates, try long blades
- Opportunities to race on skates within public skates
- Linkage to other programs – scouts, girl guides, school programs etc.
- FUN skates, marathon distances (eg. 5km, 10km, 25km, 50km)
- Corporate challenges
- Child/parent races
- Long blade skate vs. hockey skate races
- Friday night racing – regularly accessible events



Expert Participants/Volunteers

- Develop promotional material to involve individuals
- Cost-benefit analysis needs to be done – different approaches, ½ day officials clubs – recruitment and retention
- Need to clearly communicate what is needed...
- How we retain and get people involved?
 - Develop the registry of skill sets... We need to be sure to ask
 - Developmental pathways of volunteers, coaches and officials need to be considered
- Value added
- Maintain connection to the sport
- Recognize importance in each role, develop pride in role
- Opportunity to be affiliated with the sport
- Old-timers get-togethers (officials, coaches, skaters etc...)
- Community alliances eg. Lions Club, Legion...
- Alumni lists
- Psychological health opportunity
- Provide opportunities for leadership training
- Linking to sponsors
- Social interaction and events
- Full recognition as active participants
- Celebration of contributions made, people like to contribute
- Create opportunities for spectators
- Develop more small roles vs. large daunting tasks
- Celebrate success
- Engage media in the contribution of volunteers to the sport and the community.
- Provide opportunities for involvement at higher levels (development pathway)
- Provide flexibility to be involved
- Maintain contact with former volunteers
- Provide letters of recognition/recommendation for contributions
- Opportunities to mentor and be mentored
- Provide opportunity for parents to remain involved, even when kids leave the sport
- Ensure that people's time is used effectively, participants should leave with a sense of accomplishment

APPENDIX 5 TABLES OF SUPPORTING EVIDENCE

TABLE OF CONTENTS

TABLE

A	Objectives for the Stages of the LTPAD Model	145
B	LTPAD Stages of Development and SSC Age Categories 2008/2009	146
C	Participation in SSC Age Categories by Global LTPAD Stages	147
D	Physical Development Anatomical Characteristics	148
E	Physical Development Anatomical Characteristics	149
F	Summary Training Recommendations Based On Activity Duration - Males	150
G	Summary Training Recommendations Based On Activity Duration - Females	152
H	Distance Selection Guidelines: FUNdamentals Stage of Development	154
I	Distance Selection Guidelines: Learn to Train Stage of Development	155
J	Distance Selection Guidelines: Training to Train Stage of Development	156
K	Distance Selection Guidelines Compete Stages of Development	157
L	Neurological Development Characteristics	158
M	Mental and Cognitive Development Characteristics	159
N	Mental, Emotional and Social Child Development by Age	160
O	Emotional Development Characteristics	161
P	Affiliation Development Characteristics	162
Q	Developmental Milestones	163
R	Levels of Social Play Development	164
S	Periodization, Training/Competition Ratios and Number of Competition per Year	165
T	Training/Competition Ratios – Developmental Training, Competition Training and Competition	166
U	Median Time Difference per 100 between Females and Males In SSC Age Categories	167
V	Proportion of Adult Height	168
W	Angle of Inclination	169
X	Percentage Decline in Registrations in Adjacent Age Categories	170
Y	Percentage Decline in Registrations in Two Apart Age Categories	170
Z	Periodization, Training/Competition Ratios and Number of Competition per Year	171



Table A

Objectives for the Stages of the LTPAD Model

The following is a list of the objectives identified in two documents (*Find Your Edge*¹ and *Canadian Sport for Life*² (CS4L). Both were included for consistency. It is noted that the SSC *Find Your Edge* document has 'Learning to Compete' and 'Learning to Win' developmental stages which are not in the Canadian Sport for Life documents. *Canadian Sport for Life* includes the document has 'Active Start' and 'Active for Life' developmental stages which are not in the *Find Your Edge* document. Where available both objectives were included to provide a richer description of the stage objectives.

Active Start (0 to 6yrs)

- Learn fundamental movements and link them together into play (CS4L)

FUNdamentals (males 6 to 9 yrs and females 6 to 8 years)

- Basic movement skills (*Find Your Edge*)
- Learn all fundamental movement skills and build overall motor skills (CS4L)

Learning to Train (Males 9 yrs - 12 yrs and females 8 yrs - 11 yrs)

- Fundamental sports skills including speed skating skills (*Find Your Edge*)
- Learn over all sport skills (CS4L)

Training to Train (males 12 yrs - 16 yrs and females 11 yrs - 15 yrs (age ranges are PHV dependent))

- Building the engine and sport specific skills (*Find Your Edge*)
- Build and aerobic base, develop speed and strength towards the end of f the stage and further develop and consolidate sport specific skills (CS4L)

Learning to Compete (males 16 yrs - 18 yrs and females 15 yrs - 17 yrs)

- Optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*)

Training to Compete (males 18 yrs - 21 yrs and females 17 yrs - 21 yrs)

- Further optimizing the engine, speed skating specific skills and fitness (*Find Your Edge*)
- Optimizing the engine and learn to compete (CS4L)

Learning to Win (ST males 21 yrs - 23 yrs & ST females 21 - 23) (LT males 21 - 25 & LT females 21 - 25)

- Maximizing the engine and speed skating specific skills and fitness (*Find Your Edge*)

Training to Win (ST males 23+ yrs and ST females 23+ yrs) (LT males 25+ yrs and females 25+ yrs))

- Further maximizing the engine, speed skating specific skills and fitness (*Find Your Edge*)
- Podium performances (CS4L)

Active for Life (This may occur at any age)

- Smooth transition from an athlete's competitive career to lifelong physical activity and participation in sport. (CS4L)

Note the review team felt that while this stage was not included in *Find Your Edge* this stage is a critical part of speed skating. The team identified different roles which include volunteering, coaching, officiating recreational and health skating and competitive racing.

¹ *Find Your Edge SSC's Long Term Athlete Development Model, Speed Skating Canada*

² *Canadian Sport for Life Long Term Development Resource Paper, Canadian Sport Centres.*



Table B
LTPAD Stages of Development and SSC Age Categories 2008/2009

LTPAD Stage	Abbreviations	Male Age	SSC Age Classes	Females Age	SSC Age Classes
Active Start	AS	under 6	Cradle	under 6	Cradle
FUNDamentals	FUNd	6 to 9	Pee Wee & Bantam	6 to 8	Pee Wee & Bantam 1
Learning to Train	L2T	9 to 12	Midget & Juvenile 1	8 to 11	Bantam to Midget
Training to Train	T2T	12 to 16	Juvenile 1 & Intermediate 1	11 to 15	Midget 2, Juvenile & Junior
Learning to Compete	L2C	16 to 18	Intermediate & Senior	15 to 17	Junior 2 & Intermediate
Training to Compete	T2C	18 to 21	Senior	17 to 21	Intermediate 2 & Senior
Learning to Win -ST	L2W	21 to 23	Senior	21 to 23	Senior
Training to Win - ST	T2W	23+	Senior	23+	Senior
Learning to Win -LT	L2W	21 to 25	Senior	21 to 25	Senior
Training to Win -ST	T2W	25 +	Senior	25 +	Senior
Active for Life	A4L		enter at any age		Masters



Table C
Participation in SSC Age Categories by Global LTPAD Stages

		769	Sport for Life
Masters	over 30		
Senior	over 17	407	Competition – 10%
Intermediate	16 to 17	348	
Junior	14 to 15	551	Training – 20%
Juvenile	12 to 13	769	
Midget	10 to 11	1094	FUNdamentals – 70%
Bantam	8 to 9	1257	
Pee Wee	6 to 7	1414	
Cradle	under 6	1239	



Table D Physical Development Anatomical Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) <i>(Bantam to Juvenile – FUND to T2T)</i></p> <ul style="list-style-type: none"> Heart size is increasing in relation to rest of body. Endurance capacity is more than adequate to meet demands of most activities. 	<p>Early Puberty (males 9 to 16 females 8 to 15) <i>(Bantam to Junior – L2T to T2T)</i></p> <ul style="list-style-type: none"> Significant proportional change occurs in bone, muscle, and fat tissue. Because athletes will need to constantly change their positions, monitor carefully to ensure appropriate adaptations are being made. Different parts of the body grow at different rates. Arm and leg length increases before the trunk. Athletes may appear gangly and lose control of their extremities. 	<p>Late Puberty (males 14 to 18 females 13 to 17) <i>(Junior – L2C)</i></p> <ul style="list-style-type: none"> Post-menarche height begins to stabilize. Increase in height is about 5%. Stabilization of muscular system also occurs. Skeletal maturation continues. Connective tissue is strengthening. Continue progressive overloading in training. By 17, girls have generally reached adult proportions. Girls proportionately gain more weight during this period. Optimize aerobic training. Be aware of how to deal with weight gains. Teach athletes how to compete in varied circumstances 	<p>Early Adulthood (males 16 to 22 females 15 to 22) <i>(Senior – Learning to Win)</i></p> <ul style="list-style-type: none"> Final skeletal maturation in females occurs at about 19-20 years and in males about 3 years later.
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The items are directly taken from *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics* and are primarily from the "Basic Characteristics" with some items for the "General Impact on Performance" column. *The labels in italics are the mid SSC age categories and LTP/AD stages for the ages noted*



Table E Physical Development Anatomical Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) <i>(Bantam to Juvenile- FUNd to T2T)</i></p>	<p>Early Puberty (males 9 to 16 females 8 to 15) <i>(Bantam to Junior - L2T to T2T)</i></p>	<p>Late Puberty (males 14 to 18 females 13 to 17) <i>(Junior to Intermediate – T2T to L2C)</i></p>	<p>Early Adulthood (males 16 to 22 females 15 to 22) <i>(Intermediate to Masters Senior- L2C to A4L)</i></p>
<ul style="list-style-type: none"> • Heart size is increasing in relation to rest of body. • Endurance capacity is more than adequate to meet demands of most activities. • Anaerobic system is not developed. • There is a limited ability to work anaerobically. • A child's metabolism is less economical than adults. • Children use more oxygen whether it's expressed in absolute values or prorated for body weight. • Do not expect younger children to keep up with older children. • Children have a shorter tolerance time for exercise extreme temperatures. Children may show symptoms of overheating or hypothermia more quickly. • To acclimatize children will take longer so longer warm-up may be required. Watch closely for signs of distress caused by extremes of temperature. • Children subjectively feel able to be active in the heat before physiological adaptation has occurred. • Postpone or restrict exercise in heat or humidity and ensure that plenty of fluids are ingested. Thirst is not a good indication of fluid need. 	<ul style="list-style-type: none"> • Decreases in flexibility result directly from growth. Movements may become restricted. Emphasize slow stretching exercises. • Increases in growth and decreases in flexibility make adolescents prone to injury from acute impact. • There is a significant increase in the production of red blood cells. • The oxygen transportation system is improved. • Introduce structured aerobic training to make the most of these changes. • Only short duration anaerobic training is recommended. 	<ul style="list-style-type: none"> • Post- menarche height begins to stabilize . • Increase in height is about 5%. • By 17, girls have generally reached adult proportions. • Girls proportionately gain more weight during this period. • Be aware of how to deal with weight gains. • Optimize aerobic training. • Teach athletes how to compete in varied circumstances. 	<ul style="list-style-type: none"> • Physiologically, the body reaches maturity during this stage. • All physiological systems are fully trainable.

The items are directly taken from Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics and are primarily from the "Basic Characteristics" with some items for the "General Impact on Performance" column. The labels in italics are the mid SSC age categories and LTP/AD stages for the ages noted



Table F

Summary Training Recommendations Based On Activity Duration - Males

Green highlights Window of Trainability | Red indicates time frame to avoid

Age	Activity Duration	Recommendation
6	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of literacy (agility, speed, balance and coordination) Efforts should be in short bursts
	30 sec – 2.5 min	Utilise for games Avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
7	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of literacy (agility, speed, balance and coordination). Efforts should be in short bursts
	30 sec – 2.5 min	Utilise for games Avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue.
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
8	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of literacy (agility, speed, balance and coordination) Efforts should be in short bursts
	30 sec – 2.5 min	Utilise for games Avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
9	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Window of Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games and low intensity repetition of skills Avoid maximal efforts for these duration of effort
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
10	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Window of Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games, Games should allow participants to use short burst of speed then stop as they fatigue Avoid continuous maximal effort
	2.5 min – 10 min	Slow continuous repetition or games for skill development Avoid high intensity
	10 min +	In moderation, ensure that activities are FUN and require sub-maximal efforts
11	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Window of Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games Avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue Avoid at high intensity
	2.5 min – 10 min	Slow continuous repetition or games for skill development – Avoid at high intensity
	10 min +	In moderation, ensure that activities are FUN and require sub-maximal efforts Opening of Window of Trainability with the onset of PHV for early maturing athletes

This table was developed from the following sources:

- Planning a practice, Coaching Association of Canada, *Introduction to Competition Reference Materials – Designing activities for practice and Growth and Development Principles* – Summary Tables on Page 74 - 87
- Istvan Balyi, *Paradigm Shifts in Coaching*, PowerPoint Presentation, Basketball Ontario, January 2009
- *Canadian Sport for Life* p 24-27 & Appendix 1
- NCCP Level IV – Course Notes - Task 1 – Energy Systems



Table F.2

Summary Training Recommendations Based On Activity Duration - Males

Green highlights Window of Trainability | Red indicates time frame to avoid

Age	Activity Duration	Recommendation
12	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Window of Trainability for skill extended until the onset of PHV Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games, Games should allow participants to use short burst of speed then stop as they fatigue Avoid continuous maximal effort Avoid at high intensity
	2.5 min – 10 min	Slow continuous repetition or games for skill development Avoid high intensity
	10 min +	Opening of Window of Trainability with the onset of PHV
13	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Utilise for skill development at sub-maximal efforts Avoid training at high intensity
	2.5 min – 10 min	Utilise for skill development at sub-maximal efforts Good for long slow repetition
	10 min +	Window of Trainability for aerobic capacity with the on-set of PHV
14	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Utilise for skill development at sub-maximal efforts Avoid training at high intensity
	2.5 min – 10 min	Begin to introduce aerobic power maximal intensity efforts in moderation
	10 min +	Window of Trainability for aerobic capacity with the on-set of PHV
15	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Utilise for skill development at sub-maximal efforts Begin to introduce activities in the 90 sec to 2.5 min range Avoid 60 – 90 sec duration – maximal lactate saturation
	2.5 min – 10 min	Window of Trainability for aerobic power. Train through long (2min+) and ultra-short (20sec-) intervals
	10 min +	Window of Trainability for aerobic capacity continues until PHV begins to decelerate
16	0 – 30 sec	2nd Window of Trainability for speed begins to close as PHV ends Late developers will have an extended window As the Window of Trainability closes the system is fully trainable and regular training should continue
	30 sec – 2.5 min	Window of Trainability for strength opens with the end of PHV, proceed with moderation at first Emphasis should be on closing windows for speed and aerobic power
	2.5 min – 10 min	Window of Trainability for aerobic power Train through long (2min+) and ultra-short (20sec-) intervals
	10 min +	Fully trainable, training should continue and Practice speeds should increase as aerobic power increases
17	0 – 30 sec	Speed is fully trainable, continue to train through all practice session Emphasize technical and tactical execution at high speed as well as acceleration
	30 sec – 2.5 min	Window of Trainability for strength opens with the end of PHV, proceed with moderation at first
	2.5 min – 10 min	Aerobic power is fully trainable Continue to train to support the efficiency of the anaerobic lactic system
	10 min +	Fully trainable, training should continue and Practice speeds should increase as aerobic power increases



Table G

Summary Training Recommendations Based On Activity Duration - Females

Green highlights Window of Trainability | Red indicates time frame to avoid

Age	Activity Duration	Recommendation
6	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of literacy (agility, speed, balance and coordination) Efforts should be in short bursts
	30 sec – 2.5 min	Utilise for games, games should allow participants to use short burst of speed then stop as they fatigue Avoid continuous maximal effort
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
7	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of literacy (agility, speed, balance and coordination) Efforts should be in short bursts
	30 sec – 2.5 min	Utilise for games, games should allow participants to use short burst of speed then stop as they fatigue Avoid continuous maximal effort
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
8	0 – 10 sec	Window of Trainability - Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games and low intensity repetition of skills Avoid maximal efforts for these duration of effort
	2.5 min +	Avoid due to limited long term physiological benefit and short attention span of participants
9	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games, games should allow participants to use short burst of speed then stop as they fatigue Avoid continuous maximal effort
	2.5 min+	Slow continuous repetition or games for skill development Avoid at high intensity
10	0 – 10 sec	Emphasise quick movement and reaction time
	10 – 30 sec	Utilise for the development of speed skating skills at high speeds Opportunity for skill Maximal efforts for the full duration should be avoided
	30 sec – 2.5 min	Utilise for games, avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue Avoid at high intensity
	2.5 min – 10 min	Slow continuous repetition or games for skill development Avoid at high intensity
	10 min +	In moderation, ensure that activities are FUN and require sub-maximal efforts Opening of the Window of Trainability with the onset of PHV for early maturing athletes
11	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Utilise for games, avoid continuous maximal effort Games should allow participants to use short burst of speed then stop as they fatigue Avoid at high intensity
	2.5 min – 10 min	Slow continuous repetition or games for skill development Avoid at high intensity
	10 min +	Window of Trainability for aerobic capacity with the on-set of PHV

This table was developed from the following sources:

- Planning a practice, Coaching Association of Canada, *Introduction to Competition Reference Materials – Designing activities for practice and Growth and Development Principles – Summary Tables on Page 74 - 87*
- Istvan Balyi, *Paradigm Shifts in Coaching*, PowerPoint Presentation, Basketball Ontario, January 2009
- *Canadian Sport for Life* p 24-27 & Appendix 1
- NCCP Level IV – Course Notes - Task 1 – Energy Systems



Table G.2

Summary Training Recommendations Based On Activity Duration - Females

Green highlights Window of Trainability | Red indicates time frame to avoid

Age	Activity Duration	Recommendation
12	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Utilise for skill development at sub-maximal efforts Avoid training at high intensity
	2.5 min – 10 min	Utilise for skill development at sub-maximal efforts. Good for long slow repetition.
	10 min +	Window of Trainability for aerobic capacity with the on-set of PHV
13	0 – 30 sec	2nd Window of Trainability for speed – emphasise maximal speed up to 20 sec
	30 sec – 2.5 min	Window of Trainability for strength opens as PHV begins to decelerate and with the onset of menarche. Proceed in moderation at first
	2.5 min – 10 min	Begin to introduce aerobic power maximal intensity efforts in moderation,
	10 min +	Window of Trainability for aerobic capacity with the on-set of PHV
14	0 – 30 sec	2nd Window of Trainability for begins to close as PHV ends, late developers will have an extended window. With the Window of Trainability closed the system is fully trainable and regular training should continue
	30 sec – 2.5 min	Window of Trainability for strength opens as PHV begins to decelerate and with the onset of menarche. Proceed in moderation at first
	2.5 min – 10 min	Window of Trainability for aerobic power. Train through long (2min+) and ultra-short (20sec-) intervals
	10 min +	Window of Trainability for aerobic capacity continues until PHV begins to decelerate
15	0 – 30 sec	Speed is fully trainable, continue to train through all practice session Emphasize technical and tactical execution at high speed as well as acceleration The window of opportunity may be extended for late developers
	30 sec – 2.5 min	Window of Trainability for strength continues until the end of PHV
	2.5 min – 10 min	Window of Trainability for aerobic power Train through long (2min+) and ultra-short (20sec-) intervals
	10 min +	Fully trainable, training should continue and practice speeds should increase as aerobic power increases
16	0 – 30 sec	Speed is fully trainable, continue to train through all practice session Emphasize technical and tactical execution at high speed as well as acceleration
	30 sec – 2.5 min	Strength is fully trainable; the Window of Trainability ends as PHV period ends
	2.5 min – 10 min	Aerobic power is fully trainable; continue to train to support the efficiency of the anaerobic lactic system
	10 min +	Fully trainable, training should continue and practice speeds should increase as aerobic power increases
17	0 – 30 sec	Speed is fully trainable, continue to train through all practice session, emphasize technical and tactical execution at high speed as well as acceleration
	30 sec – 2.5 min	Fully trainable, training should continue and practice speeds should increase as aerobic power increases
	2.5 min – 10 min	Aerobic power is fully trainable; continue to train to support the efficiency of the anaerobic lactic system
	10 min +	Fully trainable, training should continue and practice speeds should increase as aerobic power increases



Table H
Distance Selection Guidelines: FUNdamentals Stage of Development
 2008 SSC Distances and Records

age	dist 1	dist 2	dist 3	dist 4	Age 0 to 10 sec	10 to 30 sec	30 sec to 2.5 min	2.5 min to 10 min	10 min plus	skill	SSC Age Class
Male LT (FUN)											
6	100	200	300	400	6	little value	little value	little value	little value	literacy	Pee Wee
7	13.00	24.45	35.84	49.06	7	emphasize	little value	little value	little value	literacy	Pee Wee
8	200	300	400	600	8	emphasize	little value	little value	little value	literacy	Bantam
9	21.37	31.24	41.76	1:01.55	9	emphasize	little value	little value	little value	emphasize	Bantam
Male ST (FUN)											
6	111m	222m	333m	500m	6	little value	little value	little value	little value	literacy	Pee Wee
7	14.90	27.58	39.97	1:00.17	7	emphasize	little value	little value	little value	literacy	Pee Wee
8	222m	333m	500m	666m	8	emphasize	little value	little value	little value	literacy	Bantam
9	24.60	35.91	54.30	1:12.83	9	emphasize	little value	little value	little value	emphasize	Bantam
Female LT (FUN)											
6	100	200	300	400	6	emphasize	little value	little value	little value	literacy	Pee Wee
7	13.68	26.19	39.06	51.31	7	emphasize	little value	little value	little value	literacy	Pee Wee
8	200	300	400	600	8	emphasize	little value	little value	little value	emphasize	Bantam
9	22.96	33.13	44.68	1:07.87	9	little value	little value	little value	little value	emphasize	Bantam
Female ST (FUN)											
6	111m	222m	333m	500m	6	emphasize	little value	little value	little value	literacy	Pee Wee
7	15.05	27.87	41.13	1:01.13	7	emphasize	little value	little value	little value	literacy	Pee Wee
8	222m	333m	500m	666m	8	emphasize	little value	little value	little value	emphasize	Bantam
9	24.5	35.84	54.58	1:11.99	9	little value	little value	little value	little value	emphasize	Bantam

- Green highlights Window of Trainability based information in on Tables F and G
- Red indicates time frame of little value based information in on Tables F and G



Table I

Distance Selection Guidelines: Learn to Train Stage of Development

2008 SSC Distances and Records

age	dist 1	dist 2	dist 3	dist 4	Age 0 to 10 sec	10 to 30 sec	30 sec to 2.5 min	2.5 min to 10 min	10 min plus	skill	SSC Age Class
Male LT (L2T)											
	200	300	400	600							
9	21.37	31.24	41.76	1:01.55		emphasize					Bantam
10	300	500	800	1000	10	little value	little value	little value	little value	emphasize	Midget
11	28.47	47.81	1:15.26	1:39.97	11	little value	little value	little value	little value	emphasize	Midget
Male ST (L2T)											
	222m	333m	500m	666m							
9	24.60	35.91	54.30	1:12.83		emphasize	little value	little value	little value	emphasize	Bantam
10	333m	500m	666m	777m	10	little value	little value	little value	little value	emphasize	Midget
11	32.03	46.96	1:03.10	1:14.29	11	little value	little value	little value	little value	emphasize	Midget
Female LT (L2T)											
	200	300	400	600							
9	22.96	33.13	44.68	1:07.87	9	little value	little value	little value	little value	emphasize	Bantam
10	300	500	800	1000	10	little value	little value	little value	little value	emphasize	Midget
11	28.44	45.74	1:14.42	1:34.64	11	emphasize	emphasize	little value	emphasize	emphasize	Midget
Female ST (L2T)											
	222m	333m	500m	666m							
9	24.5	35.84	54.58	1:11.99	9	little value	little value	little value	little value	emphasize	Bantam
10	333m	500m	666m	777m	10	little value	little value	little value	little value	emphasize	Midget
11	33.5	49.35	1:06.79	1:18.73	11	emphasize	emphasize	little value	emphasize	emphasize	Midget

- Green highlights window of trainability based information in on Tables F and G
- Red indicates time frame of little value based information in on Tables F and G



Table J

Distance Selection Guidelines: Training to Train Stage of Development

2008 SSC Distances and Records

age	dist 1	dist 2	dist 3	dist 4	Age 0 to 10 sec	10 to 30 sec	30 sec to 2.5 min	2.5 min to 10 min	10 min plus	skill	SSC Age Class
Male LT (T2T)											
12	300	500	1000	1500	12	little value	little value	little value	emphasize	emphasize	Juvenile
13	26.04	41.36	1:26.13	2:17.93	13	emphasize	emphasize	little value	emphasize	emphasize	Juvenile
14	500	1000	1500	3000	14	emphasize	emphasize	little value	emphasize	emphasize	Junior
15	39.25	1:20.23	2:01.95	4:30.66	15	emphasize	emphasize	l.v. 60 to 90	emphasize	emphasize	Junior
Male ST (T2T)											
12	500m	666m	777m	1000m	12	little value	little value	little value	emphasize	emphasize	Juvenile
13	44.38	1:00.24	1:10.04	1:31.40	13	emphasize	emphasize	little value	emphasize	emphasize	Juvenile
14	500m	777m	1000m	1500m	14	emphasize	emphasize	little value	emphasize	emphasize	Junior
15	43.23	1:07.91	1:29.31	2:16.39	15	emphasize	emphasize	l.v. 60 to 90	emphasize	emphasize	Junior
Female LT (T2T)											
12	300m	500m	1000m	1500m	12	emphasize	emphasize	little value	emphasize	emphasize	Juvenile
13	27.72	43.99	1:31.04	2:28.83	13	emphasize	emphasize	little value	emphasize	emphasize	Juvenile
14	500m	1000m	1500m	3000m	14	emphasize	emphasize	emphasize	emphasize	emphasize	Junior
15	43.36	1:28.44	2:17.61	4:57.16	15	emphasize	emphasize	emphasize	emphasize	emphasize	Junior
Female ST (T2T)											
12	500m	666m	777m	1000m	12	emphasize	emphasize	little value	emphasize	emphasize	Juvenile
13	47.42	1:03.34	1:14.86	1:39.02	13	emphasize	emphasize	emphasize	emphasize	emphasize	Juvenile
14	500m	777m	1000m	1500m	14	emphasize	emphasize	emphasize	emphasize	emphasize	Junior
15	45.50	1:12.70	1:35.63	2:25.99	15	emphasize	emphasize	emphasize	emphasize	emphasize	Junior

Green highlights window of trainability based information in on Tables F and G
 Red indicates time frame of little value based information in on Tables F and G



Table K

Distance Selection Guidelines Compete Stages of Development

2008 SSC Distances and Records

age	dist 1	dist 2	dist 3	dist 4	Age 0 to 10 sec	10 to 30 sec	30 sec to 2.5 min	2.5 min to 10 min	10 min plus	skill	SSC Age Class
Male LT (L2C)											
15					15	emphasize	emphasize	l.v. 60 to 90	emphasize	emphasize	Junior
16	500	1500	3000	5000	16	emphasize	emphasize				ISU Jr
17	35.34	1:46.49	3:45.98	6:27.68	17						ISU Jr
18	500	1500	5000	10000							Senior
19	34.03	1:42.01	6:14.01	13:10.58							
Male ST (L2C)											
15					15	emphasize	emphasize	l.v. 60 to 90	emphasize	emphasize	Junior
16	500m	1000m	1500m	3000m	16	emphasize	emphasize				ISU Jr
17	42.47	1:27.21	2:18.46	4:57.10	17						ISU Jr
18	500m	1000m	1500m	3000m							Senior
19	40.86	1:23.815	2:10.71	4:34.27							
Female LT (L2C)											
15					15	emphasize	emphasize				Junior
16	500m	1000m	1500m	3000m	16						ISU Jr
17	38.53	1:16.16	1:58.67	4:04.49	17						ISU Jr
18	500m	1500m	3000m	5000m							Senior
19	37.22	1:51.79	3:53.34	6:48.97							
Female ST (L2C)											
15					15	emphasize	emphasize				Junior
16	500m	1000m	1500m	3000m	16						ISU Jr
17	46.01	1:35.87	2:28.97	5:17:10	17						ISU Jr
18	500m	1000m	1500m	3000m							Senior
19	43.677	1:30.823	2:17.19	4:57.389							

Green highlights window of trainability based information in on Tables F and G

Red indicates time frame of little value based information in on Tables F and G



Table L Neurological Development Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) <i>(Bantam to Juvenile - FUNd to T2T)</i></p> <ul style="list-style-type: none"> • Strength develops by the improvement in the neural pathways. • There is apparent improvement in strength not brought about by the neuromuscular adaptations of muscle fibres. • Large muscle groups are more developed than smaller ones. • The child is skilful in movement requiring the use of the large groups. • Emphasize the development of general motor skills involving the large muscle groups. Then gradually introduce more precise, co-ordinated movements requiring the interaction of smaller muscle groups. • Motor patterns become more refined and the balance mechanism in the inner ear gradually matures. • Great improvements in agility, balance, co-ordination, and flexibility occur towards the end of the stage. • Plan coordination activities • Children learn well by imitating and practicing correctly modeled movements. 	<p>Early Puberty (males 9 to 16 females 8 to 15) <i>(Bantam to Junior - L2T to T2T)</i></p> <ul style="list-style-type: none"> • The central nervous system is almost fully developed. • Agility, balance, and co-ordination are fully trainable. • Use this period for maximum improvement in skill development. • Athletes may temporarily lose some of their kinaesthetic awareness, their ability to “know where they are.” • Make athletes aware of the effect of their changing body shape. Skills already refined may need to be re-learned. 	<p>Late Puberty (males 14 to 18 females 13 to 17) <i>(Junior to Intermediate – T2T to L2C)</i></p> <ul style="list-style-type: none"> • Generally by 16, the brain has reached adult size, but continues to develop neurologically. • Athletes can understand the technical requirements of their sport. • Optimize neuromuscular training. 	<p>Early Adulthood (males 16 to 22 females 15 to 22) <i>(Intermediate to Masters Senior - L2C to A4L)</i></p> <ul style="list-style-type: none"> • Neurologically, the brain matures about 19-20 years of age.
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The items are directly taken from *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics* and are primarily from the “Basic Characteristics” with some items for the “General Impact on Performance” column.



Table M

Mental and Cognitive Development Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) (<i>Bantam to Juvenile- FUNd to T2T</i>)</p> <ul style="list-style-type: none"> The attention span gradually increases. Children cannot listen or stay still for long periods. Children are enthusiastic and often impatient. Children want to move and not listen. Children have very limited reasoning ability. Children love to be led. Children enjoy the repetition of activities and improve through experience. Skill learning must be directed; children do not learn correctly just by trial and error. Imagination is blossoming. Creativity should be encouraged. Language skills may be limited but are improving. Children can't make corrections to their performance unless they understand what is being asked of them. Children like things to be fair. 	<p>Early Puberty (males 9 to 16 females 8 to 15) (<i>Bantam to Junior - L2T to T2T</i>)</p> <ul style="list-style-type: none"> Abstract thinking becomes firmly established. Adolescence should be part of decision making processes and be more responsible for their decisions. A new form of egocentric thought develops. The result may be strong fear of failure. Plan for success. Structure successful skill learning based on individual needs Introduce coping strategies, including mental imagery. Young people are eager to perfect their skills. Structure successful skill learning based on individual needs. Provide positive reinforcement. Build on success. 	<p>Late Puberty (males 14 to 18 females 13 to 17) (<i>Junior to Intermediate - T2T to L2C</i>)</p> <ul style="list-style-type: none"> Critical thinking becomes more established. Athletes can make decisions about their training pathway. Allow athletes input and reduce amount of feedback and make athletes think for themselves. Rate of improvements in motor ability and skill developments decline. There should be complete understanding and acceptance of the need for rules, regulations, and structure. Rules are seen in simplistic terms and must be clear and well defined. 	<p>Early Adulthood (males 16 to 22 females 15 to 22) (<i>Intermediate to Masters Senior - L2C to A4L</i>)</p> <ul style="list-style-type: none"> Athletes are capable of self-analyzing and correcting and refining skills. Athletes can analyze and conceptualize all facets of their sport. Well-developed information processing skills improve the athlete's ability to visualize verbal instructions. Establish winning as the major objective. Implement principles of adult learning. There is a complete understanding and acceptance of the need for rules, regulations, and structure. The young adult must perceive the rules and structure as being clearly defined and fair.
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The items are directly taken from *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics* and are primarily from the "Basic Characteristics" with some items for the "General Impact on Performance" column.



Table N

Mental, Emotional and Social Child Development by Age

Age	Social	Emotional	Mental
2-3	<ul style="list-style-type: none"> - Attention span 3-4 mins longer when he enjoys - Short memory - Actions & objects much easier to understand than words - Confuse real & imaginary - Believes all you say - Able to choose between two possibilities - Can follow two different directions 	<ul style="list-style-type: none"> - Extremely curious - Ritualistic: needs order in daily routines Repetition - Doesn't understand teasing - Meets frustration with crying, kicking, biting - Meets correction with temper outbursts 	<ul style="list-style-type: none"> - Completely self-centered - Willing to conform - With guidance, recognizes others' rights and waits briefly for own turn - Imitates parents in worship - Attitudes toward others, authority, parents and God is formed in these years - Wants to help & please - Nervous system sensitive to over-stimulation by noise and confusion
4-5	<ul style="list-style-type: none"> - Have attention span of between 5-10 mins - Reasoning is based on appearance, observation powers not accurate - No understanding of cause and effect - Unable to consider motivation behind action - Fantasy is at its height - Has a great imagination 	<ul style="list-style-type: none"> - Learns to develop attitudes concerning right and wrong - Tries to sort out real from pretend - Aware of what people think and say about him - Fears people laughing at him - Enjoys obedience and thrives on praise 	<ul style="list-style-type: none"> - Imitates adults - Leadership is beginning to show and tends to be bossy - Can learn to share with one or two others - Learning to understand fairness
6-8	<ul style="list-style-type: none"> - Have attention span of 15-20 mins - Are concrete and literal minded - Have little realization of chronological sequence 	<ul style="list-style-type: none"> - Tells you exactly how he feels: sick, happy, or miserable - Thrives on praise and acceptance - He exercises his feelings rather than self-control - Self-confidence in ability to know what and how things are done 	<ul style="list-style-type: none"> - Are concerned about group acceptance - Likes to assert himself. Wants to be first, best, biggest and to win - Can begin to give of self. Starts to demonstrate generosity and kindness - Protective attitude toward younger children
9-12	<ul style="list-style-type: none"> - Have attention span of 30-45 mins - Likes to be challenged - Can learn abstract concepts like sin 	<ul style="list-style-type: none"> - Growing understanding of principles behind rules - Self-righteously & rigidly applies his code of rules - Sensitive to his own failures and shortcomings - Able to see own actions & motives objectively - Able to analyze failures & makes plans to act change 	<ul style="list-style-type: none"> - They want to join, to become affiliated with the beliefs and values of the important adults in their lives - Can begin to sacrifice self-interest for others - Can learn not to compare himself with others



Table O Emotional Development Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) <i>(Bantam to Juvenile - FUNd to T2T)</i></p>	<p>Early Puberty (males 9 to 16 females 8 to 15) <i>(Bantam to Junior - L2T to T2T)</i></p>	<p>Late Puberty (males 14 to 18 females 13 to 17) <i>(Junior to Intermediate – T2T to L2C)</i></p>	<p>Early Adulthood (males 16 to 22 females 15 to 22) <i>(Intermediate to Masters Senior - L2C to A4L)</i></p>
<ul style="list-style-type: none"> Children like to be the centre of attention. Develop this characteristic. Plan activities that guarantee success. Always move from simple to more complex when teaching a skill movement. Allow children to show their skills. Children are developing their self concept. Children tend to evaluate their performance as a whole and in terms that may be black and white. (I was brilliant, or, I was useless.) Provide positive reinforcement to build self-esteem. Children are likely to perform the actions again if they are successful and feel good about it. Build on success. Children feel secure with a routine and structure to training. Introduce change sensitively and gradually. Children feel secure when coaching is constant. Children like things to be fair. Set and maintain high levels of expectancy, but be consistent with each child. Do not let mood swings or personal situations change coaching behaviours. 	<ul style="list-style-type: none"> Physical, mental, and emotional maturity may not develop at the same time. Athletes who look mature may not act it. Confusion or anxiety may arise. Tensions may arise between adults and adolescents. Adolescents need help to cope with their physical and emotional changes. Endure two-way communication channels are always open. Hormonal activity increases. Athletes may experience mood swings and behaviour may change. Social interaction between males and females becomes important. Athletes want to form friendships and it is important to allow time for them to develop positive relationships. 	<ul style="list-style-type: none"> Major decisions about examinations, universities, and employment work have to be made. There are “pulls” on time and energy. Peer group pressure leads to conflicting loyalties. An athlete may give up sport because of peer pressure and the need to be seen as one of the gang. Be sensitive in goal setting to ensure that common goals are established and met. Self-actualization and self-expression are important. Interactions with friends of both sexes continue to be a strong priority. 	<ul style="list-style-type: none"> There is a need to be self-directed and independent. Self-actualization and self-expression are important. Major decisions on career, education, and lifestyle are priority at some point in this stage. Major changes in interests, hobbies, and physical activities occur. Interactions with the opposite sex continue to be a strong priority with lasting relationships developing.

The items are directly taken from *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics* and are primarily from the “Basic Characteristics” with some items for the “General Impact on Performance” column.



Table P

Affiliation Development Characteristics

<p>Late Childhood (males 6 to 14 females 6 to 13) <i>(Bantam to Juvenile - FUNd to T2T)</i></p> <ul style="list-style-type: none"> • Children love to be led. 	<p>Early Puberty (males 9 to 16 females 8 to 15) <i>(Bantam to Junior - L2T to T2T)</i></p> <ul style="list-style-type: none"> • Early tensions may arise between adults and adolescents. • Social interactions between males and females important. 	<p>Late Puberty (males 14 to 18 females 13 to 17) <i>(Junior to Intermediate – T2T to L2C)</i></p> <ul style="list-style-type: none"> • Peer group pressure leads to conflicting loyalties. • Self-actualization and self expression are important. • Interactions with friends of both sexes continue to be a strong priority. 	<p>Early Adulthood (males 16 to 22 females 15 to 22) <i>(Intermediate to Masters Senior - L2C to A4L)</i></p> <ul style="list-style-type: none"> • There is a need to be self directed and independent. • Self-actualization and self expression are important. • Major decisions on career, education and lifestyle are priority at some point in this stage. • Interactions with opposite sex continues to be a strong priority with lasting relationships developing.
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The items are directly taken from *Find Your Edge Speed Skating Canada's Long-Term Athlete Development Plan Appendix 1 Physical, Mental, Emotional Development Characteristics* and are primarily from the "Basic Characteristics" with some items for the "General Impact on Performance" column.

Table Q

Developmental Milestones

<p>Preschoolers (3-5 years old)</p> <ul style="list-style-type: none"> • She will become more independent. • Begin to focus more on adults and children outside of the family. 	<p>Middle Childhood (6-8 years old)</p> <ul style="list-style-type: none"> • Developing independence from family becomes more important now. • Events such as starting school bring children this age into regular contact with the larger world. • Friendships become more and more important. 	<p>Middle Childhood (9-11 years old)</p> <ul style="list-style-type: none"> • Developing independence from the family more important now. • Healthy friendships are very important to your child's development. • Peer pressure can become strong during this time. 	<p>Early Adolescence (12-14 years old)</p> <ul style="list-style-type: none"> • At this age, teens make more of their own choices about friends, sports, studying, and school. • They become more independent, with their own personality and interests.
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from <http://www.cdc.gov/ncbddd/child/preschoolers.htm>



Table R
Levels of Social Play Development

Average Age Of Initiation	Style of Play
8 months	Peek-a-boo games
2 years old	Parallel play
4 years old	Associative play
5 years old	Cooperative play
6 years old	Low organized games and movement education
8 years old	Individual/dual sports, relays and lead-up games
10 years old	Team sports
12 years old	Individualized leisure preferences

Sherrill Claudine Adapted Physical Activity, Recreation and Sport Cross Disciplinary and Lifespan, Brown and Benchmark, 1993, p113.

Table S Periodization, Training/Competition Ratios and Number of Competition per Year¹

Note Percentage Competition includes competition specific training²

Stage of Development	Recommended Ratio Training to Competition (competition includes competition specific training)	Periodization	Recommended Competition per Year (which are event specific)
Active Start (AS)	all activity FUN based	no periodization	no recommendation
FUNdamentals (FUNd)	all activity FUN based	no periodization	0 to 6 per year
Learning to Train (L2T)	70% training 30% competition	single periodization	4 to 8 per year
Training to Train (T2T)	60% training 40% competition	single periodization	8 to 12 per year
Learning to Compete (L2C)	40% training 60% competition	double periodization	15 to 19 per year
Training to Compete (T2C)	40% training 60% competition	double periodization	13 to 17 per year
Learning to Win (L2W)	25% training 75% competition	double periodization	11 to 15 per year
Training to Win (T2W)	25% training 75% competition	double periodization	11 to 15 per year
Active for Life (A4L)	based on individuals desire	no recommendation	no recommendation

¹ Based on Training and Competition Objectives identified in *Find Your Edge Speed Skating Canada's Long Term Athlete Development Model*

² Canadian Sport for Life, Canadian Sport Centres p43



Table T
Training/Competition Ratios – Developmental Training, Competition
Training and Competition¹ Note Percentage Competition includes Competition Specific Training²

	Stage of Development	% train	% compete	% Actual Competition	% Compete Training	% Development Training
M 6 - 9 F 6 - 8	FUNdamentals					
M 9 - 12 F 8 - 11	Learning to Train	70%	30%	15%	15%	85%
M 12 - 16 F 11 - 15	Training to Train	60%	40%	15%	25%	85%
M 16 - 18 F 15 - 17	Learning to Compete	40%	60%	28%	32%	72%
M 18 - 21 F 17 - 21	Training to Compete	40%	60%	21%	39%	79%
M 21 - 24 F 21 - 24	Learning to Win	25%	75%	16%	59%	84%
M 23 + F 23 +	Training to Win	25%	75%	16%	59%	84%

• “% Training” and “% Competing” is taken directly from the Sport for Life and Find Your Edge documents.

• “% Actual Compete” is the “competition session per Year” divided by the “Total Sessions”

• “% Competition Training” is the “% Competing” minus the “% Actual Compete”

• “% Developmental Training” is the % Training from the two documents

¹ Based on Training and Competition Objectives identified in *Find Your Edge Speed Skating Canada’s Long Term Athlete Development Model*

² *Canadian Sport for Life Canadian Sport Centres* p43

Table U
Median Time Difference per 100 between Females and Males In SSC Age Categories
 (female records minus male records)

Age Class	LT	ST
SENIOR (over 17)	1.07	0.69
INTERMEDIATE (16-17)	1.01	0.70
JUNIOR (14-15)	0.85	0.62
JUVENILE (12-13)	0.54	0.56
MIDGET (10-11)	-0.06	0.52
BANTAM (8-9)	0.76	-0.02
PEEWEE (6-7)	0.78	0.12



Table V
Proportion of Adult Height

Average height (cm), by age		Proportion of adult height		
Age (years)	Girls	Boys	Girls	Boys
8	143.9	145.3	0.88	0.82
9	139.8	140.4	0.86	0.79
10	142.0	143.1	0.87	0.81
11	147.6	148.4	0.90	0.84
12	153.6	153.5	0.94	0.87
13	158.1	159.8	0.97	0.90
14	160.9	166.3	0.99	0.94
15	162.0	170.6	0.99	0.96
16	162.3	174.2	1.00	0.98
17	164.8	177.1	1.01	1.00
18	164.2	177.9	1.01	1.00
19	163.1	177.4	1.00	1.00

Source: Statistics Canada, Census at School, 2007/2008.
http://www19.statcan.gc.ca/04/04_0708/04_0708_003-eng.htm



Table W Angle of Inclination

Short Track Males

	Data on angle of inclination				angle inclination		
	time	sec/100	8m	7m	6m		
men world record	40.86	8.17	19.8	17.5	15.1		
juvenile SSC	44.38	8.88	23.0	20.4	17.6		
midget SSC	46.96	9.39	25.3	22.5	18.4		
bantam SSC	54.3	10.86	32.5	29.1	25.5		

Short Track Females

	Data on angle of inclination				angle inclination		
	time	sec/100	8m	7m	6m		
ladies world record	43.67	8.73	22.1	19.5	16.9		
juvenile SSC	47.42	9.48	25.8	22.9	19.9		
midget SSC	49.35	9.87	27.7	24.7	21.5		
bantam SSC	54.58	10.92	32.5	29.1	25.5		

adapted from tables developed by Robert Tremblay



Table X
Percentage Decline in Registrations in Adjacent Age Categories

age	Male		Female		Total		LTPAD Stages	
	#	% Total	#	% Total	#	% Total	males	females
under 6	873		366		1239		AS	AS
6 to 7	854	-2.2%	560	53.0%	1414	14.1%	FUND	FUND & L2T
8 to 9	796	-6.8%	461	-17.7%	1257	-11.1%	FUND	L2T
10 to 11	649	-18.5%	445	-3.5%	1094	-13.0%	L2T	L2T
12 to 13	452	-30.4%	317	-28.8%	769	-29.7%	T2T	L2T & L2T
14 to 15	314	-30.5%	237	-25.2%	551	-28.3%	T2T	T2T
16 to 17	187	-40.4%	161	-32.1%	348	-36.8%	L2C	T2T & L2C

Table Y
Percentage Decline in Registrations in Two Apart Age Categories

age	Male		Female		Total		LTPAD Stages	
	#	% Total	#	% Total	#	% Total	males	females
under 6	873		366		1239		AS	AS
6 to 7	854		560		1414		FUND	FUND & L2T
8 to 9	796	-8.8%	461	26.0%	1257	1.5%	FUND	L2T
10 to 11	649	-24.0%	445	-20.5%	1094	-22.6%	L2T	L2T
12 to 13	452	-43.2%	317	-31.2%	769	-38.8%	T2T	L2T & L2T
14 to 15	314	-51.6%	237	-46.7%	551	-49.6%	T2T	T2T
16 to 17	187	-58.6%	161	-49.2%	348	-54.7%	L2C	T2T & L2C



Table Z Periodization, Training/Competition Ratios and Number of Competition per Year

Note Percentage Competition includes competition specific training

	Find Your Edge	Matrix	Find Your Edge	Matrix	Find Your Edge	Matrix	Find Your Edge	Matrix	Find Your Edge	Matrix	Find Your Edge	Matrix
	N COMPS	N COMPS	COMP/TRAIN	PER WEEK	PER WEEK	PER WEEK	season WEEKS	on ice weeks	season weeks	PERIODS	PERIODS	PERIODS
FUNd	0 TO 6	0 to 6	no recom.	1 TO 3	1 to 2	22 TO 24	(22 - 24)	22 to 24	(22 - 24)	0	0	
L2T	4 TO 8	4 to 8	30/70	3 PLUS 3	3 plus 3	22 TO 29	(22 - 29)	22 to 29	(22 - 29)	1 (1-2)	1	1
T2T	8 TO 12	6* to 9* 8 to 12	40/60	3-5 + 2 (6 to 9)	6 to 9	year round	40*	22 to 29	40*	1 (1-2)	2	2
L2C	15 TO 19	15-20	60/40	6 PLUS 3	6 to 9	year round	year round	22 to 29	year round	1, 2 or 3	2	2
T2C	13 TO 17	14-18	60/40	9 TO 12	9 to 12	year round	year round	36 to 38	year round	1, 2 or 3	2 to 3	2 to 3
L2W	11 TO 15	10 to 15	75/25	11(9) TO 15	11 to 15	year round	year round	36 to 38	year round	1, 2 or 3	2 to 3	2 to 3
T2W	11 TO 15	10 to 15	75/25	11(9) TO 15	11 to 15	year round	year round	36 to 28	year round	1, 2 or 3	2 to 3	2 to 3

Green is from the matrices the Review Team has developed
Red is where the Sport for Life differs from Find Your Edge

Based on Training and Competition Objectives identified in Find Your Edge Speed Skating Canada's Long Term Athlete Development Model
Canadian Sport for Life Canadian Sport Centres p43



CANADA

Speed Skating Canada's Long Term Participant and Athlete Development Model
is a framework for training, competition and recovery for skaters
of all ages in every stage of development.