



Rope Skipping for Life

Rope Skipping Canada's Long-Term Athlete
Development Pathway. 1st Edition, 2016





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A MESSAGE FROM THE PRESIDENT

Rope Skipping Canada is pleased to present our Long-Term Athlete Development (LTAD) framework. This document is a resource that was developed to support all aspects of Rope Skipping in Canada. It is consistent with the Sport for Life Society's Second Edition Long-Term Athlete Development Resource Paper, "Canadian Sport for Life" (2014), and is adapted for Rope Skipping.

This framework directly aligns with Rope Skipping Canada's mission, vision and values, and provides a blueprint to guide our operations, functions and actions within our sport. It highlights our dedication to the health and wellness of all participants, and international excellence for those who wish to pursue it. It is designed to promote individual, program and organizational-level success through quality best practices endorsed by the wider sporting community. Expected outcomes include increased participant recruitment, participation, retention, and performance.

In order to achieve our goals, it requires alignment across all levels of Rope Skipping in our country; Rope Skipping Canada, provincial affiliates, local clubs, schools, and community recreation organizations. This includes systematic coaching development at all levels from grassroots to high-performance, programs designed specifically for each stage of development, and a consistent focus on long-term strategies rather than short-term gains.

The Rope Skipping Canada's LTAD framework is based on the principle of continuous improvement, both in its dynamic evolution and in its application. Rope Skipping Canada will operate from the position that current concepts of LTAD represent the best practices in Rope Skipping coaching and athlete development as they are currently understood. By applying a willingness to always seek improvements in our understanding and practice, Rope Skipping Canada's LTAD framework will continuously evolve to accommodate new innovations and breakthroughs in sport science and coaching research.

By understanding and adhering to our Long-Term Athlete Development principles, we will create the optimum conditions for all Rope Skipping participants, both current and future, ultimately fostering lifelong participation, health and wellness for all those involved.



Sam Ashley, President
Rope Skipping Canada



Foreword: Why Rope Skipping?

Rope Skipping is simple in concept yet spectacular in performance. It can be enjoyed along a spectrum of abilities from grassroots participation to high performance sport. It is a playful and creative way to give one's heart, muscles and brain a "jump" forward, regardless of age or experience.

Rope Skipping has long been known to improve cardiovascular fitness. Additionally, athletes from other sports have used this activity to develop speed and coordination, for example, boxers and gymnasts. Beyond these obvious benefits, Rope Skipping also appears to foster cognitive, social and emotional development.

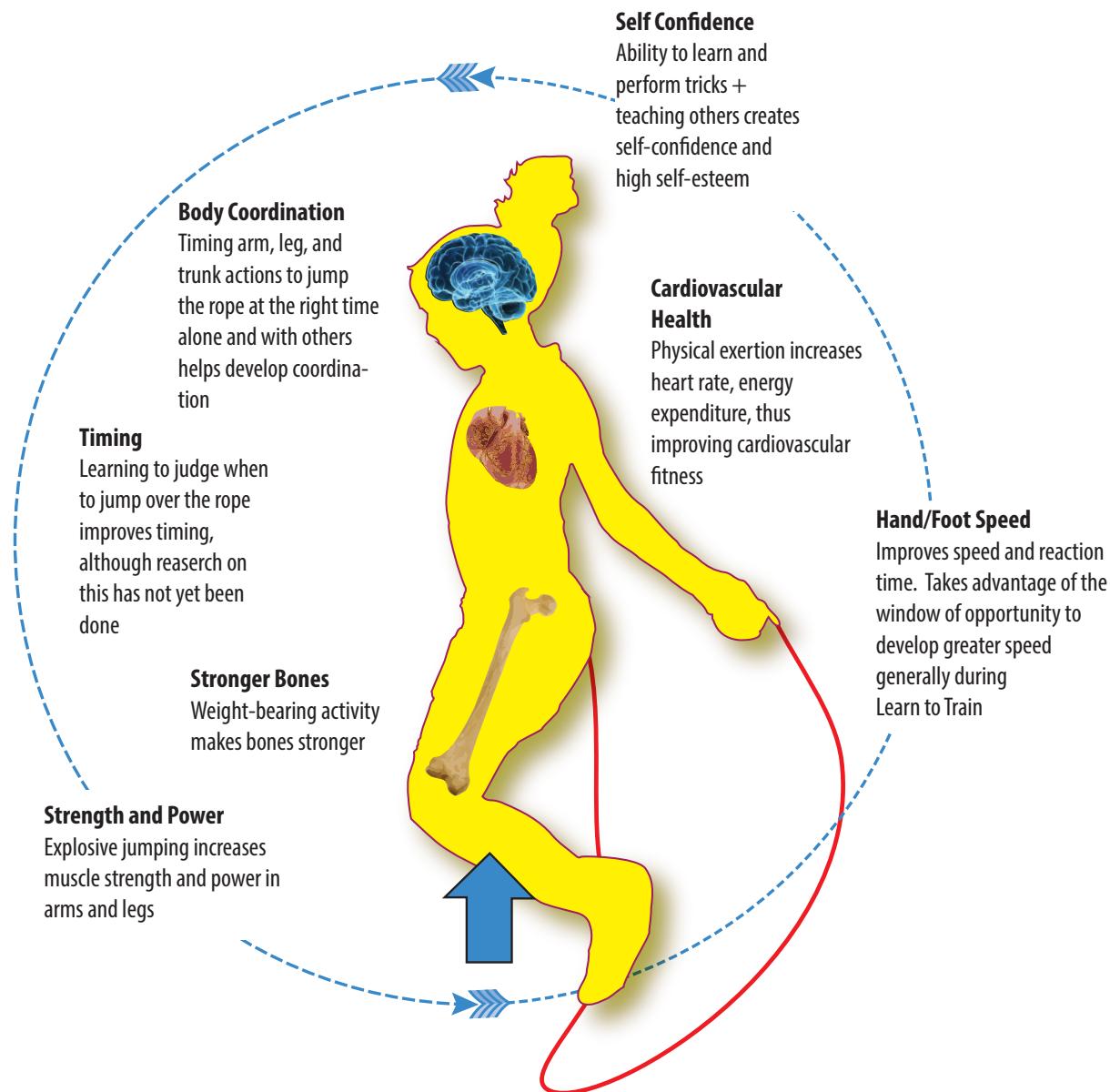
Perhaps, most importantly however, is Rope Skipping's seeming ability to nurture a sense of self-efficacy. The most basic skill - a single jump - is experienced as a success. More intricate skills demonstrated by elite jumpers are merely complex versions of this single jump. Therefore, regardless of one's ability or skill level, participation tends to leave people feeling self-confident and intrinsically motivated to continue learning.

Taking these apparent benefits into consideration, Rope Skipping seems to be an excellent tool for promoting physical activity, and thus health in the Canadian population. This probability is further leveraged by its inherent accessibility, both financially and geographically; the equipment (ropes) world champions use cost only dollars, and are identical to those used in playgrounds across Canada.

This document is an important first step toward evidence-informed Rope Skipping programming, so that many people have an opportunity to enjoy the benefits of this incredible sport. Furthermore, for those who wish to specialize, it gives Rope Skipping athletes a method from which to build a solid foundation and be guided by a framework for success.



Benefits of Rope Skipping



The benefits of rope skipping are well documented. Those interested in learning more about the science supporting the benefits shown above are encouraged to review the material referenced in Appendix A, page 43.

Rope Skipping LTAD Background

Canada's first generation Long-Term Athlete Development framework was published in 2005. Since then, close to 60 National Sport Organizations (NSOs) have adapted this framework to meet their own sport-specific needs. With continual new understandings of Long-Term Athlete Development, some NSOs are updating their frameworks on an on-going basis to incorporate the latest information, keeping their own sport in alignment with best practices.

Rope Skipping Canada has similarly recognized the need for its own Long-Term Athlete Development framework, and this document is the result. Rope Skipping Canada's Long-Term Athlete Development framework:

- Is a seven-stage model based on the physical, cognitive, social and emotional development of children, adolescents and adults, with each stage reflecting a different point in an athlete's development.
- The first three stages encourage building a sound foundation of movement skills and sport experiences for all children. The next three stages are focused on developing competitive excellence. The final stage, Active for Life, encourages life-long physical activity through Rope Skipping.
- Is "Made in Canada" - recognizing international best practices, research and normative data, while considering the cultural, social and political factors that make Canada unique.
- Supports the Federal, and Provincial/Territorial Ministers of Sport agreement that sport should be guided by Long-Term Athlete Development principles, and these principles are embedded in the Canadian Sport Policy 2.0 (2012).
- Contributes to, and promotes a healthy, physically literate nation whose citizens participate in lifelong physical activity.
- Encourages a better understanding of optimal competition structures that are appropriate for the various stages of an athlete's development.
- Describes principles to guide the optimal training, competition and recovery programs that should be provided throughout an athlete's career.
- Recognizes the need to involve all Canadians in the Long-Term Athlete Development process, including athletes with a disability and other marginalized groups.
- Facilitates the optimal involvement of the entire sport community, including participants, parents, coaches, officials, Rope Skipping Canada, Provincial and Territorial Rope Skipping Associations, skipping clubs, municipalities, schools and all levels of government.
- Assists Rope Skipping Canada in fully realizing its mission, vision and values.



Rope Skipping Canada – Mission, Vision and Values

MISSION

- Rope Skipping Canada supports and promotes Rope Skipping as a wellness activity, a recreational pursuit and a competitive sport in Canada.

VISION

- Rope Skipping is a wellness activity that promotes a healthy, active lifestyle and a positive attitude towards physical activity.
- Rope Skipping develops life skills, enhances communities and promotes and maintains healthy, independent lifestyles and enhances quality of life.
- Rope Skipping promotes positive self-image, self-respect, creativity, leadership and discipline.
- Rope Skipping is recognized nationally and internationally and is included in mainstream multi-sport competition.

VALUES

- We believe in EXCELLENCE by supporting athletes, coaches and community in promoting wellness and personal achievement at all levels.
- We believe in INTEGRITY through fairness, equity, accountability and respect for athletes, coaches and community at all levels.
- We believe that COLLABORATION with athletes, coaches and community is essential to continuously evolve and ensure the goals of our programs are met.
- We believe in the strength of DIVERSITY and everyone's right to participate in an environment that respects all individuals and is free of harassment and discrimination.

INTRODUCTION

It is an exciting time for Rope Skipping in Canada. The number and caliber of Rope Skipping competitions and events is growing. Furthermore, the push for children to re-engage in “active play” brings attention to Rope Skipping as an excellent activity to improve population-level health. To fully develop our sport we need a Long-Term Athlete Development framework for Canadian Rope Skipping, focusing on both high performance success and encouraging more people to take part in our sport for enjoyment and health.

For high performance success, systematic development of athletes will be required for Canada to succeed internationally. This requires better long-term planning of training, competitions, and recovery for every level of athlete.

For population health, Rope Skipping can play a role in enhancing the health and wellbeing of Canadians of all ages through enhancing physical activity. Rope Skipping is a sport that can be enjoyed by people at any age, with any degree of fitness, and with some disabilities. Therefore, it can contribute its part in reducing the many non-communicable diseases that come from lack of physical activity.

Rope Skipping can therefore help:

- Reduce the number of overweight and obese children, and
- Help adults maintain a healthy lifestyle, and
- Encourage more mature Canadians to become, and stay, physically active, thereby maintain health and independence, and potentially slowing the aging process.

Continuous improvement: Rope Skipping Canada’s Long-Term Athlete Development Framework, is built on the principle of Kaizen – the process of continuous improvement - and incorporates the most recent knowledge from sport science and coaching. Effective Long-Term Athlete Development will always be a work in progress, incorporating new findings, and new thinking as it emerges.

For this reason only easily updated electronic versions of this document will be produced, and readers are encouraged to re-visit the Rope Skipping Canada website www.rope skipping.com periodically to make sure they are accessing the most current framework.

Long-Term Athlete Development is NOT a program, but rather an approach to ensuring that everything done in Rope Skipping is developmentally appropriate. This means doing the right kind of training, having the right kind of competition, and putting in place the right supports for every participant, and basing that training, competition and support on the athlete's stage of development.

Remember: Long-Term Athlete Development is not just a model for developing elite athletes; it provides a solid foundation for rope skippers at all ages and levels, encouraging long-term participation, enjoyment and achievement. Long-Term Athlete Development based programs and competition, supported by updated coaching materials and qualified coaches, will ensure that all participants, regardless of their age or stage, will enjoy a quality experience. The ultimate goal is to make Rope Skipping a sport that we can all be proud of.

Why Rope Skipping Needs a Long-Term Athlete Development Model

The current system for developing Rope Skipping athletes in Canada is inconsistent and does not follow a nationally aligned system. Frequently, there is an overemphasis on outcomes (winning) rather than the process – the systematic development of Rope Skipping skills, physical capacities, mental capacities, and life-skills of our athletes. An overemphasis on outcomes rather than learning and development has been shown to result in burnout, participant drop-out and sub-optimal performance.

The Long-Term Athlete Development approach aims to re-emphasize a focus on developing these building blocks to achieve the goals of sustained participation for all, and successful elite performance for individuals specializing in Rope Skipping.

In addition, a Long-Term Athlete Development framework can help:

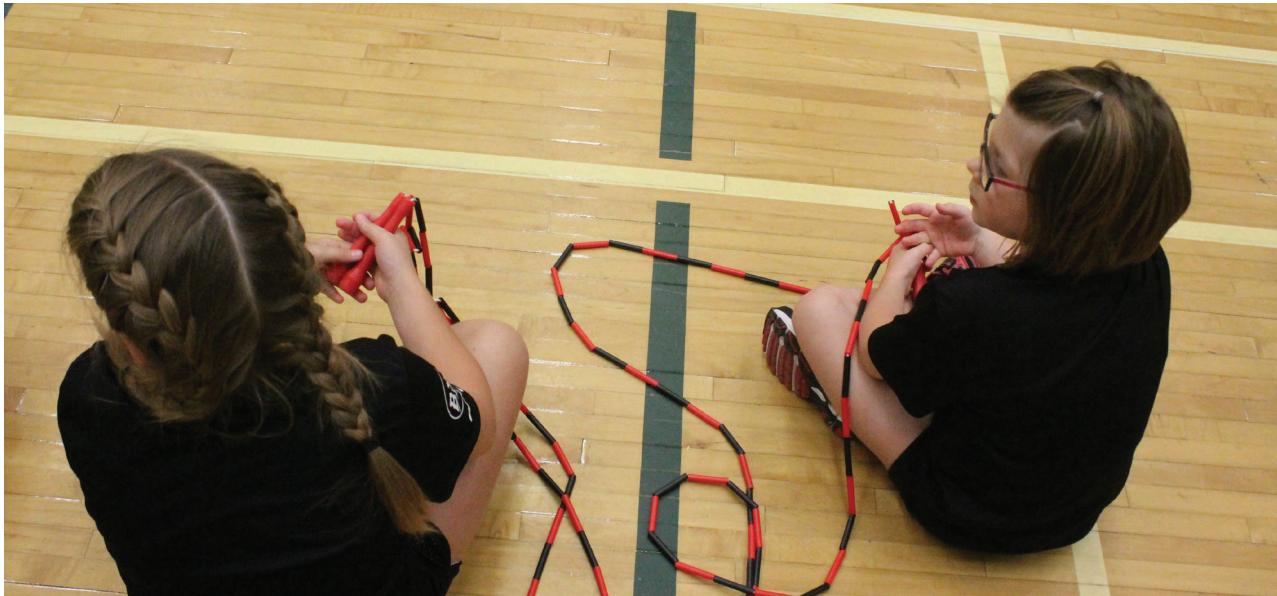
- Align programs and competitions across the country to better serve athletes.
- Inform Rope Skipping coach education programs to ensure certified coaches are delivering developmentally appropriate activities to participants of all ages, and ensure that critical skills are not missed or underdeveloped.
- Inform competition review and restructuring to increase the value of competition to developing athletes.
- Design quality sport experiences for athletes at every stage of development so as to retain more participants in the sport and increase the talent base.
- Ensure that developing athletes maintain a sport-education-work-life balance and are therefore more likely to remain in our sport.
- Make Rope Skipping more accessible and attractive to athletes with a disability.

Simply put, a well-designed Long-Term Athlete Development framework is both a requirement for receipt of Sport Canada funding, and the right thing to do to ensure that everyone who picks up a Rope enjoys a quality sport experience geared to their stage of development/maturity (not just their age), their level of skill, and their desire to excel.

The Rope Skipping Canada Long-Term Athlete Development Framework is built on the solid foundation of what we know about human growth and development. It is a system of training,

competition and recovery based on each athlete's developmental age rather than their chronological age – the number of years since they were born. Our framework is athlete-centered, coach-driven and supported by administration, sport science and sponsors.

It is important to note that the Rope Skipping's Active for Life stage can be entered at any time after a participant has acquired basic Rope Skipping skills. This includes those who play for enjoyment and fitness (Fit for Life), and those who wish to continue in competition, but are no longer on-track for international competition (Competitive for Life).



The 10 Key Factors Driving LTAD in Rope Skipping

In designing Rope Skipping's Long-Term Athlete Development framework, and ensuring consistency with current Canadian best practice, a number of important factors were taken into consideration. Based on Canadian Sport for Life 2.0, they were:

1. Physical Literacy

Physical Literacy is the foundation of both participation in physical activity and excellence in sport, providing a foundation for being active for life. Individuals who are more physically literate move with poise, confidence, competence and creativity in various indoor and outdoor environments, such as on the ground, in the air, in and on water, and on snow or ice. Developing broad physical literacy develops athleticism which leads to eventual higher performance Rope Skipping.

2. Specialization

There are right times and wrong times to specialize in any one sport or physical activity. Specialize too early, and the athlete may limit their development and success at older ages. Specialize too late, and the athlete may miss key developmental opportunities. In most sports, athletes should not specialize until they are between the ages of 12 to 15. Prior to that age, they should participate in a wide range of sports to ensure they become good, well-rounded athletes who continually develop physical literacy. This does not mean athletes should not participate in Rope Skipping before the ages of 12-15, but rather that they should include Rope Skipping among other sports played at this stage.

3. Developmental Age

Children grow and develop at different rates. Sport and physical activity need to take each child's stage of growth and development into account when designing training, competition and recovery programs.

4. Sensitive Periods

As children grow and develop, there are times when practice and training will have the greatest effect. These "sensitive periods" provide a special opportunity to train and develop important skills and physical abilities that will impact athletic performance through the lifespan.

5. Mental, Cognitive and Emotional Development

Long-Term Athlete Development addresses the complete physical, mental, cognitive and emotional development of athletes – not just physical characteristics and performance qualities. Training, competition and recovery programs need to consider the mental, cognitive, and emotional development of each athlete.

6. Periodization

Simply put, periodization is time management. It outlines all annual and seasonal training within a logical schedule to bring about optimal improvements in athlete performance at the right times, while minimizing injury and burnout. Periodization plans connect the Long-Term Athlete Development stage of the athlete with the training and development requirements of that stage.

7. Competition

Athletes need to train and compete according to training-to-competition ratios that develop skills and fitness while preventing injury and burnout. As well, the quality of competition and the timing of competitive events need to serve the needs of the athlete – not the needs of coaches, parents and administrators.

8. Excellence Takes Time

Reaching the top in any sport takes many years of practice and participation, and efforts to rush success without building a solid foundation in the sport is not helpful to the developing athlete. While there are individual differences in how fast athletes progress, few reach world championship level in much under 10 years in many, perhaps most, sports.

9. System Alignment and Integration

Long-Term Athlete Development promotes system alignment and integration between sport clubs, provincial/territorial and national sport organizations. Sport for Life addresses the overarching system and structure of sport and physical activity in Canada, including the relationship between school sport, physical education and high performance sport at all levels from policy to program delivery.

10. Continuous Improvement - Kaizen

The concept of continuous improvement, which permeates Long-Term Athlete Development, is drawn from the respected Japanese industrial philosophy known as Kaizen. By applying a willingness to always seek improvements in our understanding and practice. Rope Skipping Canada's Long-Term Athlete Development framework will continuously evolve to accommodate new breakthroughs in sport science research, new innovations in technology, and evolving best practices in coaching.

Physical Literacy

Although Rope Skipping has a seven-stage development model that covers individuals from birth to senior citizenship, it is not, as an organized sport, equally active in each stage. The majority of early Rope Skipping-specific experiences are most likely to occur during the FUNDamental and Learn to Train stages, with most Rope Skipping clubs not systematically involved with many children in the Active Start (0-6 years) stage. However, it is becoming increasingly obvious that programs children are exposed to early in life can have a huge impact on later potential for performance. For this reason guidance is provided concerning the kinds of programs that need to be in place at Active Start and – although not necessarily offered by Rope Skipping – to ensure optimal long-term development of the participant.

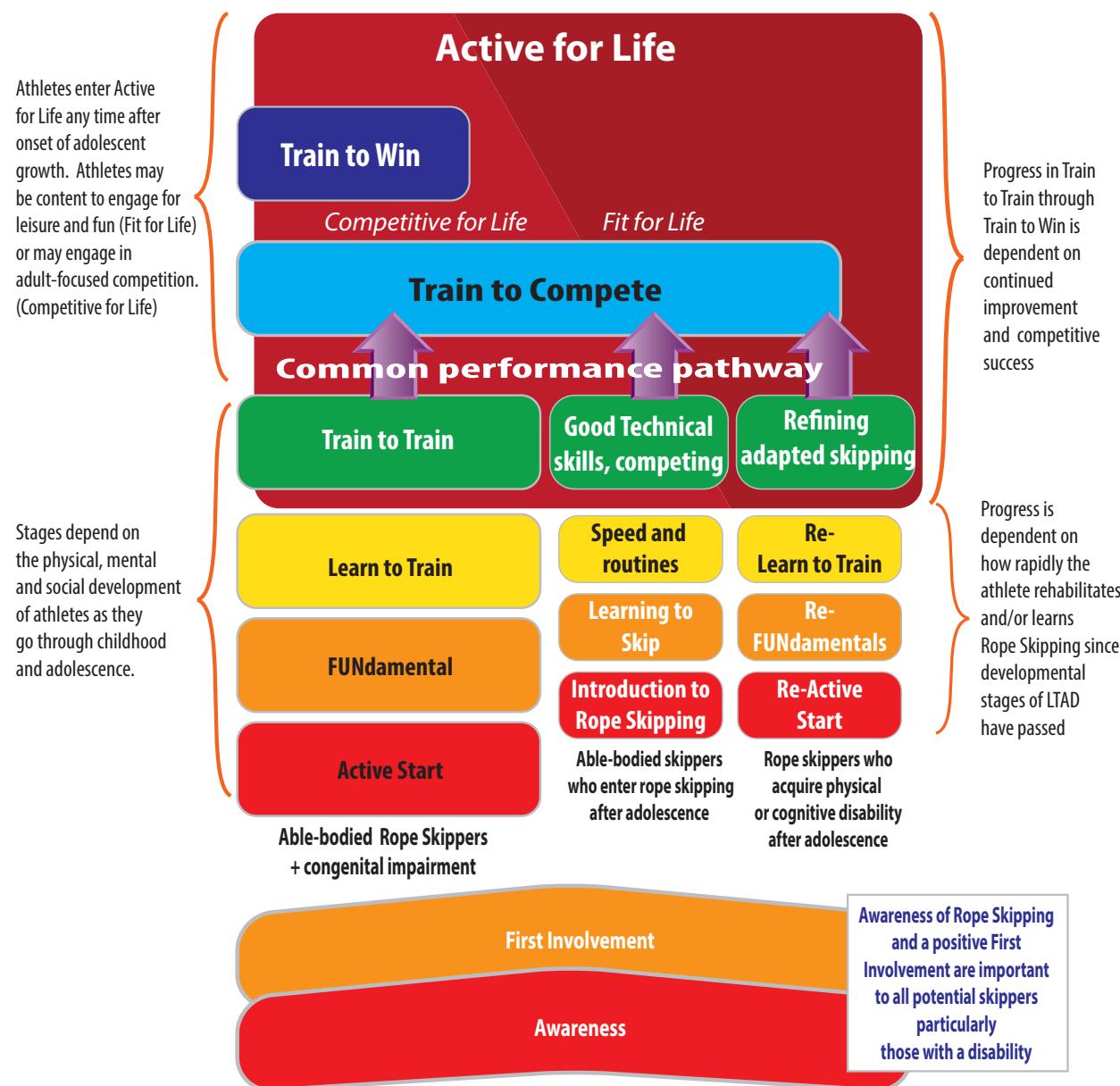
Rope Skipping stages and Physical Literacy - "Physical literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life." Rope Skipping can play an important role in this process. When Rope Skipping programs work to develop the all-round athleticism of participants, rather than just their Rope Skipping-specific skills, it is contributing to the individual's physical literacy, and therefore their ability to lead an active and healthy life.

At the same time, because many participants do not enter Rope Skipping until late childhood or sometimes their early teens, Rope Skipping relies on others – school physical education, recreation programs, parents and caregivers – to develop physical literacy and its associated agility, balance, coordination and speed BEFORE those participants take up Rope Skipping. In this way Rope Skipping is both a contributor to physical literacy (when programs are well designed) and a grateful recipient of participants who have developed their physical literacy elsewhere.

While foundational physical literacy should be developed before the onset of the adolescent growth spurt, it continues to be developed as long as participants are engaged in the sport. This lifelong physical literacy is becoming increasingly important as research shows that healthy brain aging is dependent on individuals remaining physically active while continuing to learn new skills, and being challenged. Therefore, Rope Skipping can contribute to the health and wellbeing of the nation by:

- Developing all-round athleticism and fundamental movement skills in young participants
 - who may remain in the sport or take their skills to another sport that engages them later in life or as their circumstances change.
- Bringing older adults into the game – Active for Life – and keeping athletes who have retired from high level competition in the sport in a modified or different capacity.
- Helping people with congenital or acquired disabilities develop their physical literacy when they are attracted to Rope Skipping and stay with the sport.

Rope Skipping's Long-Term Athlete Development Model



Ages for Stages

There is wide variation in the age at which children pass through each stage of development, particularly during adolescence, where early matures may start their adolescent growth spurt 4-5 years earlier than late developers. These ages are therefore only a guide.

Active Start: Boys and Girls 0-6, **FUNDamentals:** Boys 6-9, Girls 6-8, **Learn to Train:** Girls 8-11, Boys 9-12, **Train to Train:** Males 12-16, Females 11-15, **Train to Compete:** Males 16-19, Females 15-18, **Train to Win:** Females 18-21, Males 19-25, **Active for Life:** Females and males any time after the onset of adolescence.

A Pathway for Everyone

Based on the 10 key principles, Rope Skipping Canada's Long-Term Athlete Development Framework recognizes three "streams" of potential athletes. Such athletes include those who:

1. Enter the sport at the Learn to Train stage (normal entry)
2. Enter the sport after having gone through their adolescent development (late entry)
3. Enter the sport following the acquisition of a disability

Athletes with a congenital disability go through the same Long-Term Athlete Development stages as able-bodied children and youth.

Multiple entry points for Rope Skipping

Three quite distinct types of participants may end up making Rope Skipping their sport of choice.

1. Able-bodied athletes and athletes with congenital disability. Able-bodied participants pass through the normal developmental stages of Active Start and FUNDamentals (both of which should not focus heavily on Rope Skipping-specific development) before starting to learn the core skills in the Learn to Train stage. Athletes born with congenital disabilities also pass through the regular Long-Term Athlete Development stages, at standard ages, and have the same developmental needs. This may include, for example, athletes with an intellectual disability, cerebral palsy, limb amputations, or otherwise.

2. Late-entry athletes who transfer from another sport after adolescence. Athletes who come to Rope Skipping in their mid-to-late teens bring with them the capacities they developed in other sports. These athletes do NOT pass through the Rope Skipping Long-Term Athlete Development stages of Active Start to Train to Train, but rather through the phases of learning Rope Skipping skills. They are introduced to the sport, learn to skip, develop and then refine their skills. Those with the talent and drive can then enter the same Learn to Compete stage as those who started Rope Skipping at an earlier age.

3. Athletes with an acquired disability. While individuals can acquire a disability through accident or illness at any age, the peak age is in the late teens to early 20's and is more common in males than females. These individuals first become active again with their modified physical and/or cognitive capacities (Post-Rehabilitation Active Start), and then learn the fundamental skills of using a mobility aid, or prosthesis, for example (Post-Rehabilitation Fundamentals). Only then are they ready to start learning (or re-learning if they participated in Rope Skipping pre-acquisition) the modified sport-specific skills of Rope Skipping (Post Rehabilitation Learn to Train). Once they have learned to adapt their rope skipping techniques in accordance with their specific abilities, they can refine their skills. Then, for those with the talent and drive – they can join the common performance pathway at Learn to Compete. This

may include, for example, athletes with an acquired brain injury, limb amputations, or other traumatic injury.

Similarities: Athletes with and without a Disability

To reflect the overwhelming similarities between athletes with and without a disability, the Rope Skipping Long-Term Athlete Development Framework is fully integrated, and includes two additional components that were first designed to increase the involvement of athletes with a disability: Awareness and First Involvement. Although these two additional components were originally developed for athletes with a disability, they are also now recognized as important for able-bodied athletes in many of the less well-known sports – including Rope Skipping – since participants may come to our sport later in life.

Awareness - People will not start Rope Skipping if they do not know it exists as a sport.

Therefore, making the sport better known to a wider potential pool of participants is critical to building a larger Rope Skipping community. Rope Skipping for persons with a disability is virtually unknown, and raising awareness of the sport is imperative.

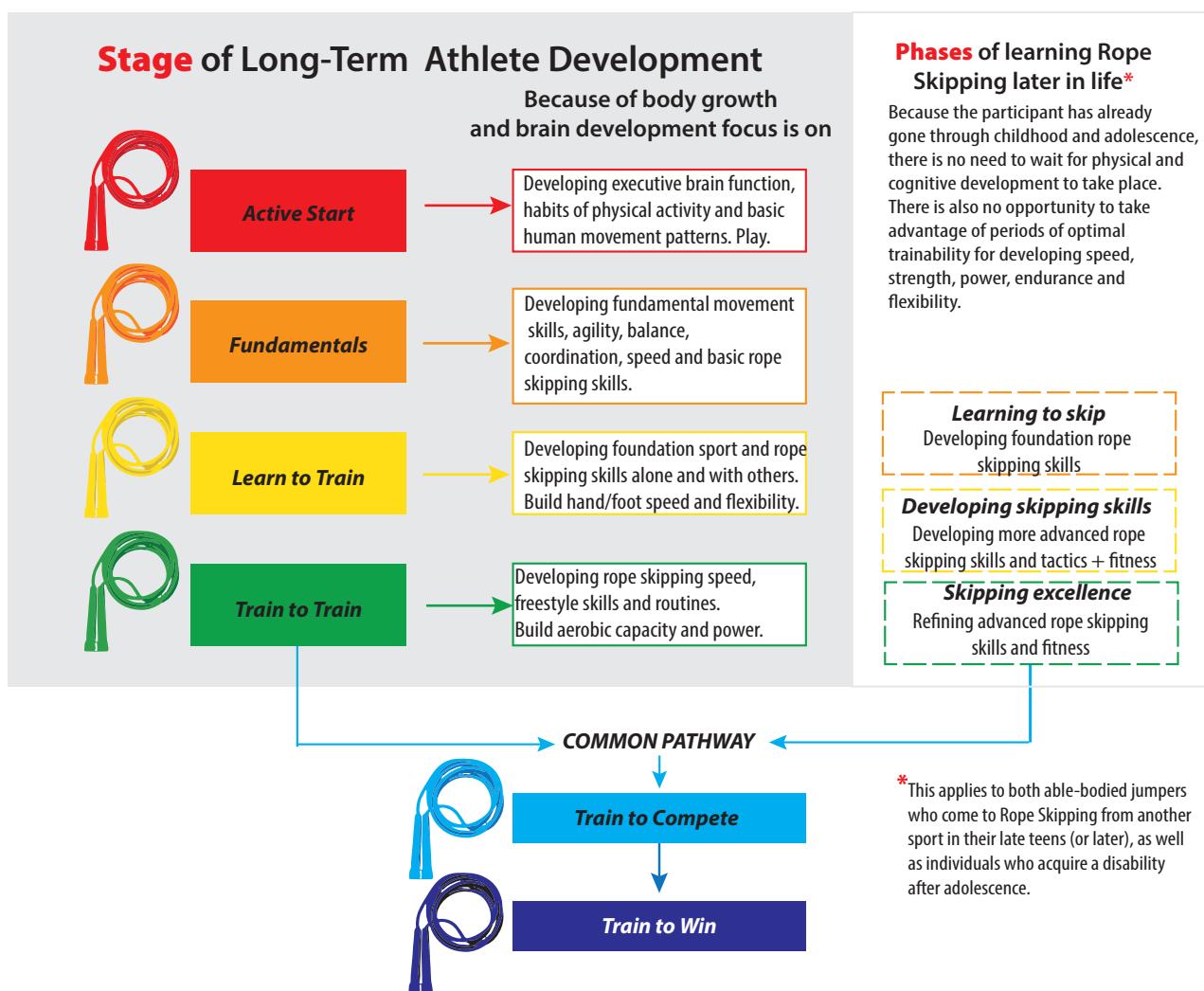
First Involvement - First impressions count. The first time a potential participant enters a Rope Skipping facility, how they are greeted and made to feel welcome is a key determinant in whether or not they will return. Clubs and programs should consider developing “first time” visitor protocols to ensure that potential future world champions are not turned away on their first visit.



Stages of Long-Term Athlete Development and Learning Rope Skipping

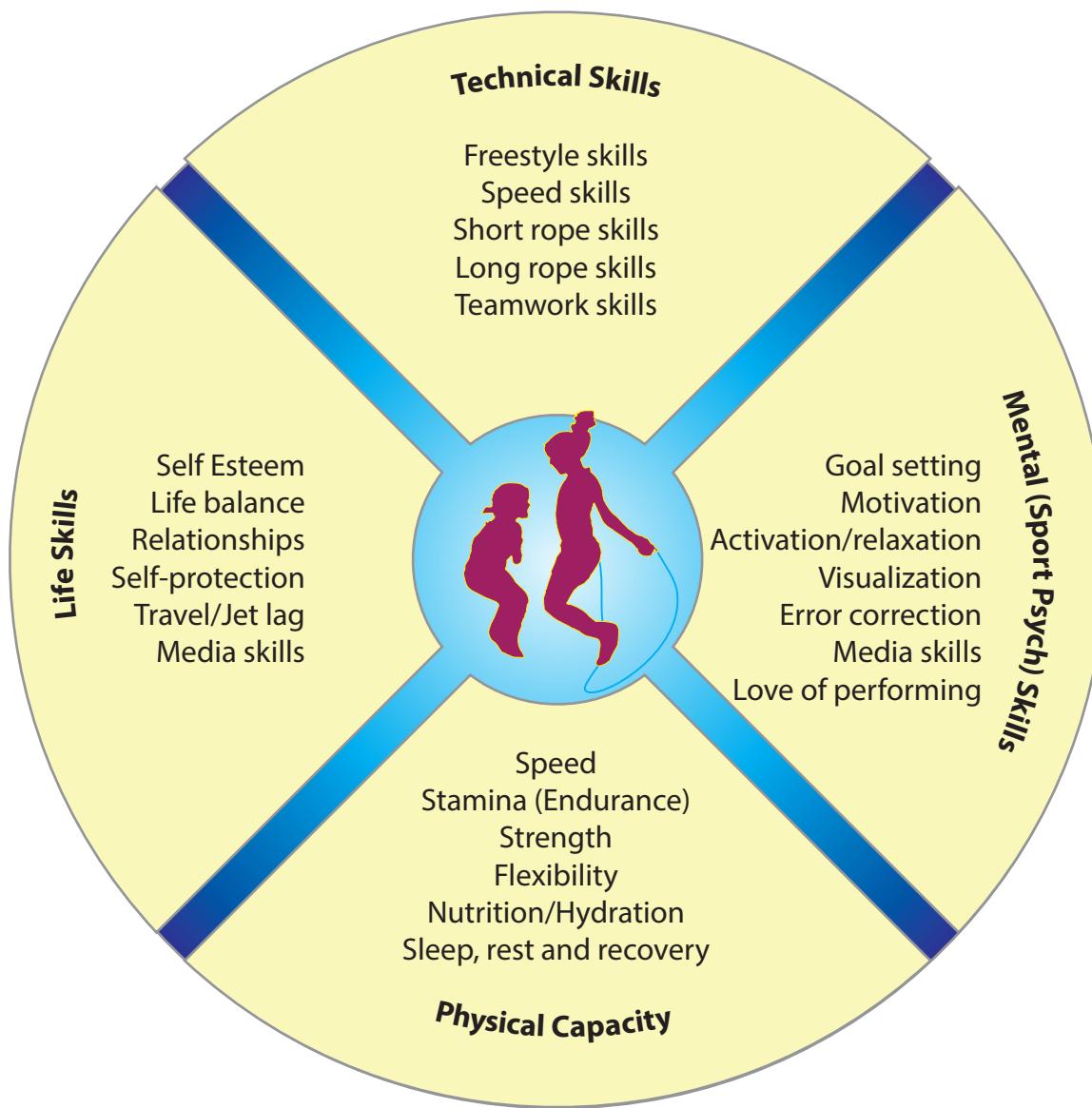
The stages of Long-Term Athlete Development are based on the known changes that occur in the human body as an individual passes through childhood, puberty, adolescence, early adulthood, later adulthood, and into old age. These body (and mind) changes are irreversible, and ultimately unstoppable – and these changes inform us about what should be done at each stage of development to give each person the greatest probability of success.

Long-Term Athlete Development focuses on answering questions about what a child needs, what an adolescent needs and what an adult needs to learn, to build or to do for later success. Since a child or an adolescent will ALWAYS have different needs than an adult, it is critical to understand that while Learn to Train is a stage of development and the best time to introduce sport-specific Rope Skipping skills, an adult learning to play Rope Skipping is NOT in this stage. This distinction between Long-Term Athlete Development Stage and level of Rope Skipping proficiency is shown below.



Building the Framework

Rope Skipping Canada's framework, based on the physical, emotional, psychological, and cognitive advancement of the developing athlete uses the frequently used "Four Corner" model of athlete development shown below.



What needs to be learned and developed within each of these four corners is broken down by Long Term Athlete Development Stages in the tables on the following two pages.

Rope Skipping Long-Term Athlete Development at a glance

See stage-by-stage section of this document for greater detail

Active Start	FUNDamentals	Learn to Train	Train to Train	Train to Compete	Train to Win	Active for Life
<p>Basic human movements developed through active play.</p> <p>Running, changing direction, stopping and starting.</p> <p>Jumping games.</p> <p>Habits of physical activity, and enjoyment of activity.</p>	<p>Fundamental movement skills in play and multiple sport participation.</p> <p>Focus on agility, balance, coordination.</p> <p>Jumping activities, including basic skipping skills.</p> <p>Learning to turn long and short ropes.</p> <p>Development of rhythm and timing.</p>	<p>Single rope skills:</p> <ul style="list-style-type: none"> Consecutive single rope speed skipping, double unders. Double Dutch consecutive speed skipping and turning. Developing rhythym with music and ropes. Develop short routines of 30-45 seconds using level 2 competitive skills. Develop partner jumping skills. 	<p>A stage of rapid rope skipping development and improvement.</p> <p>Single rope skills:</p> <ul style="list-style-type: none"> Consecutive single rope speed skipping. Target 85-100+ in 30 seconds and 480+ in 3 minutes. Double Dutch consecutive speed skipping and turning target of 200+ in 60 seconds. Develop high quality, creative routines of 70-75 seconds, incorporating musicality and level 4-5 competitive skills. Elimination of errors from routine. 	<p>Single rope skills:</p> <ul style="list-style-type: none"> Consecutive single rope speed skipping. Target 100+ in 30 seconds and 480+ in 3 minutes. Double Dutch consecutive speed skipping and turning target of 175+ in 60 seconds. Develop creative routines of 60-75 seconds, incorporating musicality and level 4 competitive skills. Coordination among team members. 	<p>Single rope skills:</p> <ul style="list-style-type: none"> Consecutive single rope speed skipping. Target 100+ in 30 seconds and 480+ in 3 minutes. Double Dutch consecutive speed skipping and turning target of 200+ in 60 seconds. Develop high quality, creative routines of 70-75 seconds, incorporating musicality and level 4-5 competitive skills. Elimination of errors from routine. High level of coordination among team members. Understanding of international competition rules and behavioural expectations, learn international rules. Thrives on competition, and performance. 	<p>Develop sufficient skills to enable safe enjoyment of rope skipping for health and social inclusion.</p>

Rope Skipping Long-Term Athlete Development at a glance

See stage-by-stage section of this document for greater detail

Active Start	FUNDamentals	Learn to Train	Train to Train	Train to Compete	Train to Win	Active for Life
<p>Physical Capacity</p> <p>Development of speed, endurance, strength and flexibility through active play.</p> <p>Multiple short bursts of activity with rest between.</p>	<p>Development of speed, endurance, strength and flexibility through active play and sport.</p> <p>Longer bursts of activity with rest between.</p>	<p>Key LTAD stage for hand and foot speed development, and flexibility gains.</p> <p>Build strength with body weight activities, and endurance through longer duration play and practice.</p>	<p>Key LTAD stage for building aerobic endurance and whole body speed.</p> <p>Formal strength training towards end of stage.</p>	<p>Key LTAD stage for building strength, speed, and explosive leg power.</p> <p>Build strength, develop anaerobic capacity and rope skipping endurance.</p>	<p>Build and maintain strength, speed, and power.</p> <p>Develop power and endurance through well planned training and extensive competitions/performances.</p>	<p>Develop physical capacities for rope skipping, and use the sport to develop or maintain physical capacities as jumper ages.</p>
<p>No periodization</p>	<p>Sharing/Taking turns</p>	<p>Develop working memory, distraction control and mental flexibility (Executive Function) through multiple games that require attention of participants.</p>	<p>Short term goal setting in training and competition with adult help.</p> <p>Basic relaxation skills and visualization.</p>	<p>Self-directed medium term goal setting.</p> <p>Intrinsic motivation strategy followed.</p> <p>Visualization and activation strategy developed and used.</p>	<p>Self-directed annual goal setting.</p> <p>Competition strategy developed and used.</p> <p>Error prevention and error recovery strategies used.</p>	<p>Self-directed goal setting.</p> <p>Basic relaxation skills and visualization.</p> <p>Self-understanding of reasons for participating in rope skipping</p>
<p>Being dependent</p>	<p>Mental (sport psychology) Skills</p>	<p>Develop Executive Function through play, and extend duration of play.</p> <p>With adult help, set short term challenges and goals.</p>	<p>Fair Play</p> <p>Develops love of performing</p>	<p>Develop greater independence and take responsibility for training.</p> <p>Balances individual needs and team requirements.</p> <p>Solid self-esteem</p> <p>Takes on mentoring role.</p>	<p>Ethical/drag free Rope Skipping</p>	<p>Rope skipping meets individual needs, and strengthens self-esteem and feelings of personal worth.</p>
<p>Increasing Independence</p>	<p>Life Skills</p>	<p>Develop confidence in different environments, and interact appropriately with expanded range of adults in the community.</p>	<p>Develop self-confidence in a range of environments.</p> <p>Understand that effective learning includes failing and trying again.</p>	<p>Develop self-confidence & self-esteem.</p> <p>Develop some independence and take responsibility for actions.</p> <p>Become part of team</p> <p>Mentor others by teaching them acquired skills.</p>	<p>Is fully committed to winning at world level.</p> <p>Lives and travels independently.</p> <p>Balances rope skipping school, work and relationships.</p>	<p>Independent</p> <p>Leading others</p>
						<p>Helps others learn skills</p>

Rope Skipping Canada

Stage-by-Stage Details



About the Active Start Stage

This is the first six years of life for both boys and girls, and is a time when both the child's brain and his or her body is growing and developing rapidly. It is the stage in which children learn to walk and run, to balance, and to develop the ABCs of Agility, Balance, Coordination and Speed of movement.

While some children may learn to skip rope during this stage of development it is not a time to focus on rope skipping skills. Far better to focus on:

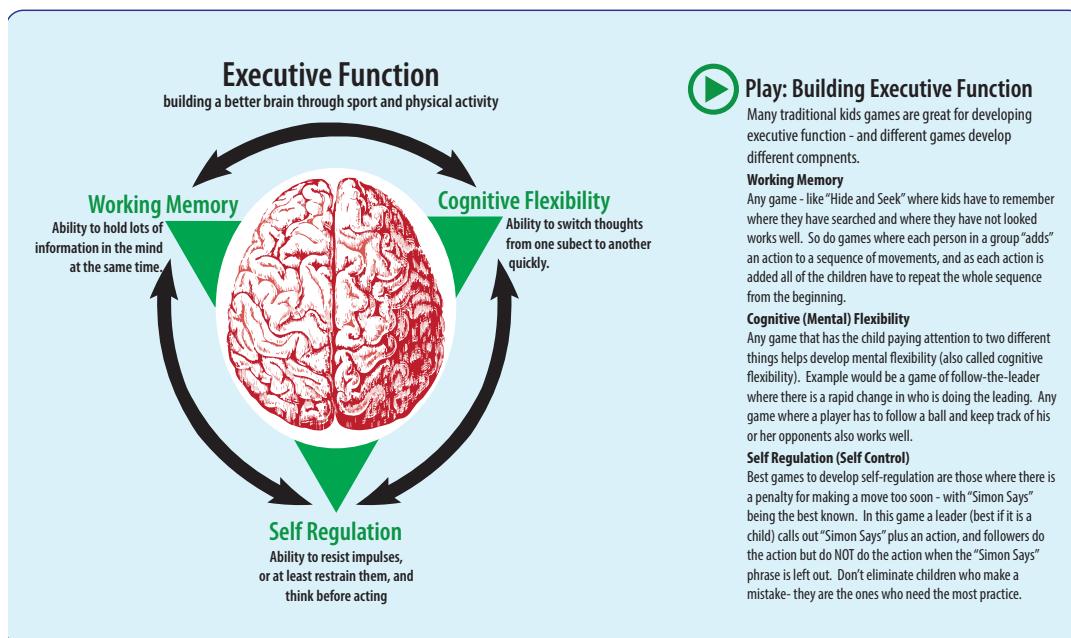
Developing Executive Function in the child, and the three most important elements of executive function, which are; working memory, cognitive flexibility, and inhibition control:

Working memory is the ability to hold greater and greater amounts of information in the memory at the same time, and is developed through games and activities where (for example) a child watches you hide a number of toys, and is then encouraged to find them all.

Cognitive flexibility is the ability to switch attention quickly, and this can be developed through games in which the child must alternate their focus between what they are trying to do (for example stay very still) and what they must watch for (the next signal to move).

Self Regulation (often called inhibition control) is the ability to be ready and prepared to do a movement, but NOT do the movement before some signal is given. This can be developed through games such as "Simon Says".

Building habits of regular physical activity. Lifelong habits of regular physical activity can be started at this stage, so play inside and outside every day, gradually increasing the duration of play. This is always helped when the physical activity is enjoyable for the child and is done with friends.



Helping kids to master the basic human movement skills that they can build on as they grow and develop. While you can help them develop ALL movement skills through (mostly) unstructured play, helping them learn to run, start and stop quickly, change direction, and hop and jump will give them a good foundation on which to later develop rope skipping skills.

Making physical activity a fun part of every day: Above all, kids this age need opportunities for free play in a stimulating environment and they need positive adult role models for whom physical play is fun. During this stage, children learn through play and imitation. Their screen time also needs to be restricted.

If kids learn to skip rope at this age - that's great; but it is not a time for intense instruction, nor is it a time for anything more competitive, than a friendly, "I can do this trick - can you?"

Physical Literacy and Canadian Activity and Sedentary Behaviour Guidelines

Physical Activity

Infants (0-1 year), should be physically active several times each day. Interactive floor-based activities are excellent.

Toddlers ages 1-2, and pre-schoolers (3-4) should accumulate at least 180 minutes - that's 3 hours - of physical activity throughout the day. It does not matter if this is made up of many short periods of active play. Play should be at different levels of physical intensity.

By 5 years, children should be engaged daily in at least 60 minutes of energetic play - and that means breathing harder and sweating!

Remember to encourage:

- A variety of activities in different environments
- Activities that develop movement skills
- Activities that develop hand-eye and foot-eye coordination (kicking, throwing and hitting)

Canadian Guidelines*

0-4 Years

Infants (0-1 year), toddlers (1-2 years) and pre-schoolers (3-4 years) should have as little time as possible being sedentary. Sedentary behaviour includes sitting or being in a stroller/chair for more than one hour at a time.

For children under 2 years, screen time, such as television, computers and tablets is NOT recommended.

For children 2 to 4 years, screen time should be limited to under one hour per day; even less time is better.

Sedentary behaviour

* Based on Canadian Physical Activity Guidelines and Canadian Sedentary Behaviour Guidelines
CSEP/SCPE: www.csep.ca/guidelines



Active Start



Girls and boys 0-6

Technical/Tactical Skills

Rope Skipping specific activities are generally inappropriate for children during the Active Start stage of their development. Children who pick up a rope and imitate parents or older siblings should not be discouraged, but organized rope skipping is not recommended.

This is a time during which basic human movement patterns should be developed, habits of daily physical activity are established and a positive attitude towards physical activity and vigorous play created. Learning occurs through structured and unstructured play rather than instruction, with unstructured play being more effective.

Structured Play

Is organized and led by an adult who decides when and where the child will play and what equipment or toys they will play with. The child follows the adult lead, and, if more than one child is playing the adult mediates any disputes. The child makes few, if any decisions and may come to rely on others telling them what to do. Not good for developing Executive Function.

Unstructured Play

Is done by the child who decides when and where they will play and what equipment or toys they will play with. The role of the adult leader is to ensure the safety of the child and provide a stimulating environment. If more than one child is playing the adult mediates any disputes only when it is clear the children involved cannot resolve it themselves. The child makes most decisions. Good for developing Executive Function.

Disability Considerations

Children with a disability should be encouraged to take part in vigorous physical play with their non-disabled peers. Provide opportunities for the development of locomotor skills of running (wheeling) jumping (if possible), and striking objects.

Include children with a disability in all group activities to the greatest extent possible, and with the least possible modification of the activity to accommodate impairment.

Develop a "can do" expectation of success when a child tries an activity.

Physical Capacity

Developed through Active Play

Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relative Strength	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strength -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexibility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note

Physical capacity is developed through active play. Unstructured play (led by the children) is most effective with adults ensuring safety. Outdoor play on different surfaces is recommended.

Sport Psych Skills

Ensure a positive physical activity environment and active adult role models.

Focus on development of executive function through games and activities that require rapid change in the player's focus (cognitive flexibility), holding multiple pieces of information in mind at the same time (working memory) and readiness to move without moving until a signal is given (inhibition control).

Games of "make believe" expand children's thinking, and "show and tell" activities to foster love of performance. Ask children to feel their heart beat, and listen to their breathing.

Encourage children to cooperate in play towards the end of this stage.

Provide a visually stimulating environment, and bright coloured physical activity equipment

Life Skills

Learns to interact with adults other than parents/caregivers, and understands that different adults have different roles.

Actively takes part in group activities, and can follow simple instructions, and imitate actions in "follow-the-leader" activities.

Learns to take turns during activities, and cooperates with others who are playing.

Learns to share toys and activity equipment.

Understands, remembers and can follow simple rules (particularly safety rules) for activities.

Can articulate what is dangerous about different areas (near roads for example) when engaged in physical play.

About the FUNdamentals Stage

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



Skill development in the FUNdamentals stage should be well-structured, positive, and FUN!

The first window of accelerated adaptation to speed occurs at ages 6 to 8 for girls and 7 to 9 for boys.

Bypassing fundamental movement skill development by teaching specialized sport-specific skills during the FUNdamentals stage is detrimental to the child's future engagement in physical activity and sport.

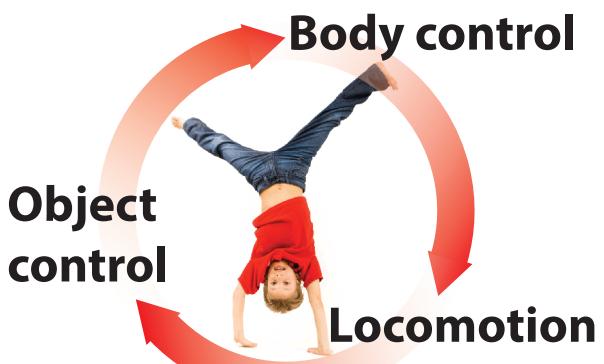
If children are falling behind their peers in developing fundamental movement skills, remediation is desirable, since children without skills are frequently excluded from informal play by their more skillful peers.

If children later decide to leave the competitive stream, the skills they acquire during the FUNdamentals stage will benefit them when they engage in other competitive sports and/or in recreational activities, enhancing their quality of life and health. However, participating once or twice a week in a Rope Skipping is good, as long as there is participation in additional sports 3 or 4 times per week. It is over-specialization that is detrimental.

Although Rope Skipping is a land-based sport it is important that kids at this stage learn water based, snow and ice based, and in-the-air body control skills - all of which will be beneficial to them in later life; whether or not they continue in Rope Skipping.

This is also a great time to formally or informally introduce rope skipping to young children. Most are quick to pick up the basics, and gain confidence from their new-found ability.

Types of fundamental movement skills



Developed the during FUNdamentals stage



FUNDamentals

Boys 6-9
Girls 6-8

Technical/Tactical Skills

Many children are introduced to rope skipping during the FUNDamentals stage, and it is a popular playground activity. In addition to all-round fundamental movement skill development, rope skipping specific skills can be introduced.

Single Rope Speed	
<input type="checkbox"/>	Single rope speed skipping
<input type="checkbox"/>	Self-monitoring (counting)
Double Dutch (DD) Speed	
<input type="checkbox"/>	DD speed skipping
<input type="checkbox"/>	DD speed turning
<input type="checkbox"/>	Self monitoring (counting)
Single Rope Power	
<input checked="" type="checkbox"/>	Double Under
<input type="checkbox"/>	Consecutive double unders
<input type="checkbox"/>	Triple Under
<input type="checkbox"/>	Consecutive triple unders

Freestyle	
<input type="checkbox"/>	CANSkip Level 1
<input type="checkbox"/>	CANSkip Level 2
<input checked="" type="checkbox"/>	CANSkip Level 3
<input type="checkbox"/>	CANSkip Level 4
<input type="checkbox"/>	Creativity - skill/sequence
<input type="checkbox"/>	Sequence (eliminate single bounce)
<input type="checkbox"/>	Rhythm - basic skipping
<input type="checkbox"/>	Rhythm - freestyle skills
<input type="checkbox"/>	Coordination - with partner
<input type="checkbox"/>	Coordination - large group
<input type="checkbox"/>	Musicality - use music accents
<input type="checkbox"/>	Performance passion

Key	
<input type="checkbox"/>	Introduced
<input checked="" type="checkbox"/>	Developed
<input checked="" type="checkbox"/>	Refined
<input checked="" type="checkbox"/>	Mastered
<input type="checkbox"/>	Maintained
<input type="checkbox"/>	Not Taught

Rules and Knowledge: Local competition rules

Remember, skills are introduced, then developed, then refined and ultimately mastered

Introduced → Developed → Refined → Mastered

Disability Considerations

Children with a disability should be encouraged to take part in vigorous physical play with their non-disabled peers. Focus on development of locomotor skills of running (wheeling) jumping (if possible), and striking objects. Introduction of rope skipping either turning rope themselves or turned by others.

Playing and developing skills is easier when mobility equipment - wheelchairs and prostheses - are lightweight and the correct size for the growing child. Because children grow rapidly, consider equipment exchanges.

Physical Capacity

	Development Priority		
	Low	Med	High
Endurance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hand & Foot (limb) speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Whole body speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relative Strength	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strength -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Notes

This is a good time to start working on hand and foot speed, and, especially for boys a good time to work on flexibility. Endurance and strength developed through vigorous play.

Sport Psych Skills

Ensure positive learning environment, that children understand everyone fails at times, and failing is important to learning as long as you keep trying.

Continued to develop executive function through games and activities that require rapid change in the participant's focus (cognitive flexibility), holding multiple pieces of information in mind at the same time (working memory) and readiness to move without moving until a signal is given (inhibition control).

Games of imagination at this stage help prepare the child for later visualization and imagery activities.

Help children "listen to their bodies" so that they know how they feel when anxious, and how their body responds to physical activity.

Introduce simple challenges and goal setting, "can you jump over this rope?", "can you hit the ball passed that line?"

Life Skills

Understands the relationship between effort and results.

Takes responsibility for being prepared for activity, participation. Is comfortable taking turns during activities, and cooperates with others who are playing.

Can be part of a team, and is sometimes a leader and sometimes a follower.

Helps prepare post-activity snacks and drinks, and understands that food and fluids are necessary for both life and sport participation.

Understands and can follow rules (particularly safety rules) for rope skipping participation.

Understands that people come from different countries (cultures) and might do things differently.

About the Learn to Train Stage

Stage Objective: Learn overall Rope Skipping skills.

One of the most important periods of motor development for children is between the ages of 9 and 12. This is a window of accelerated adaptation to motor co-ordination, and it is critical to take full advantage of the ease with which children learn sport skills.

This is also an age at which there is increasingly pressure to specialize in a single sport. This pressure should be resisted, because early specialization in late specialization sports can be detrimental to later stages of sport development and to refinement of the fundamental sport skills.

This is also the stage of development at which many athletes enter Rope Skipping as a competitive sport, rather than as a pastime. Some are introduced to the sport through school physical education, while others may get their introduction at a local recreation facility or Rope Skipping Club. For the optimum development of athletes in Rope Skipping , there needs to be a clear pathway for children who show Rope Skipping promise in recreational settings to be linked up with a local Rope Skipping Club.





Learn to Train



Boys 9 to onset of growth spurt (12)
Girls 8 to onset of growth spurt (11)

Technical/Tactical Skills

Boys and girls are primed to learn physical skills during this stage of development and Rope Skipping specific activities are encouraged, with instruction in correct techniques. It is recommended that athletes at this stage take part in 3 or 4 different seasonal sports to develop all round athleticism. In Rope Skipping, athletes should learn skills and train far more than they compete.

Single Rope Speed

- Single rope speed skipping
- Self-monitoring (counting)

Double Dutch (DD) Speed

- DD speed skipping
- DD speed turning
- Self monitoring (counting)

Single Rope Power

- Double Under
- Consecutive double unders
- Triple Under
- Consecutive triple unders

Freestyle

- CANSkip Level 4
- CANSkip Level 5
- CANSkip Level 6
- CANSkip Level 7
- Creativity - skill/sequence
- Sequence (eliminate single bounce)
- Rhythm - basic skipping
- Rhythm - freestyle skills
- Coordination - with partner
- Coordination - large group
- Musicality - use music accents
- Performance passion

Key

- Introduced
- Developed
- Refined
- Mastered
- Maintained
- Not Taught

Rules and Knowledge: Local competition rules, National rules International rules

Disability Considerations

Intellectual Impairment
Rope skipping skills can be easily learned by most children with an intellectual disability, and the repetitive nature of the activity may make it attractive to some children with autism.

Simplified instructions and demonstrations make learning easier, and for some children progress may be slower.

Avoid relegating children with a disability to rope turning or observing, and consider partnering with other organizations (Special Olympics for example) in program delivery.

Physical Capacity

Development Priority
Low Med High

Endurance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hand/Foot Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Whole body Speed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Speed -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relative Strength	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strength -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive Power	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note

A key stage for developing hand and foot speed, and for developing flexibility.

Strength training should focus on body-weight exercises, and medicine balls. Introduce hopping and bounding for power development.

Sport Psych Skills

Skill competence
Int. Dev. Ref. Mas.

Positive attitude	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Goal setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visualization	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anxiety reduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emotional Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attention/Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decision making	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Error reduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note

Kids at this stage are not as self-conscious as during adolescence and this makes it a good time to introduce and practicing sport psychology skills in a group setting.

Life Skills

Athlete takes responsibility for preparing equipment/clothes for training and competition.

Athlete takes responsibility for preparing pre-and post training snacks and drinks.

Athlete is comfortable traveling to and from training and competition as part of team/group.

Understands the ethics of sport and makes conscious decision not to cheat.

Can be a leader and a follower when appropriate.

Appreciates diversity and accepts personal differences.

 Amputees have and follow appropriate stump-care protocol

About the Train to Train Stage

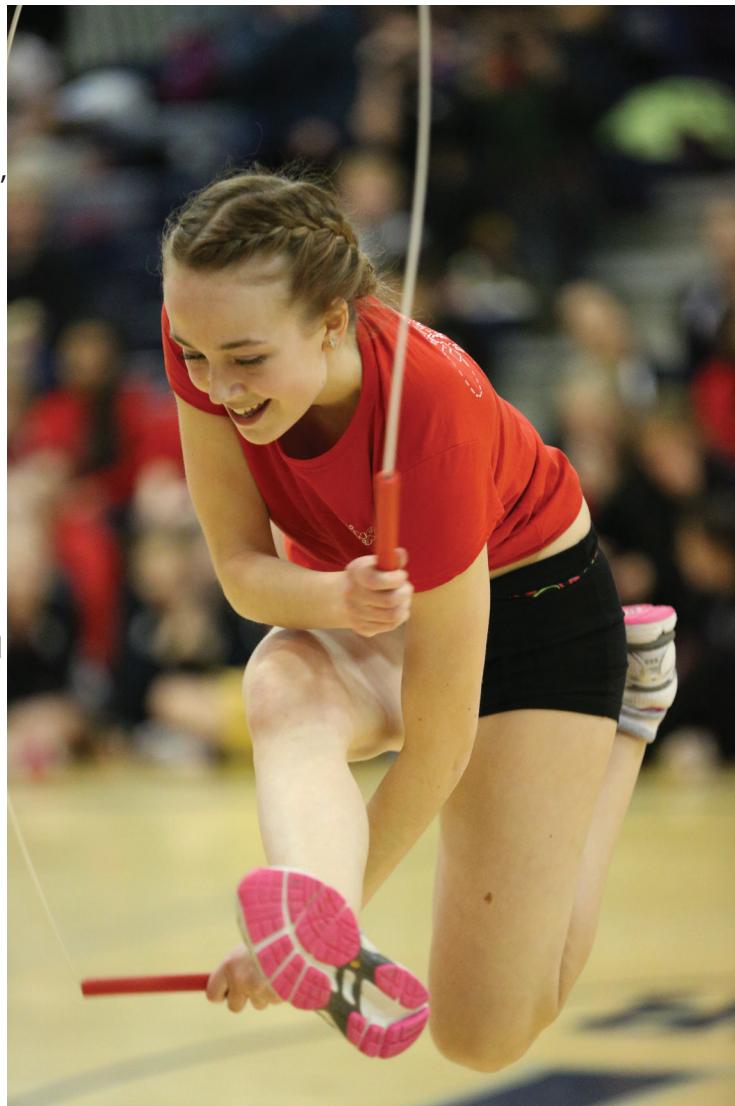
Stage Objective: Build an aerobic base, develop speed and strength towards the end of the stage, and further develop and consolidate Rope Skipping skills.

This stage occurs for the duration of the athlete's adolescent growth spurt, which for females occurs between the ages of 11 and 15, and for males between the ages of 12-16. The age of onset varies greatly, and since Rope Skipping competitions are often based on chronological rather than developmental age, age-group competition success is often a poor predictor of adult Rope Skipping potential.

During this stage young athletes consolidate and refine their basic sport-specific skills and tactics, and are beginning to focus heavily on Rope Skipping as their major sport. This stage provides a window of accelerated adaptation to aerobic fitness, whole body speed, and strength training, with optimal aerobic trainability beginning with the onset of the adolescent growth spurt.

There is an increased focus on competitions, and athletes compete to win, but may also take part in some competitions to practice techniques and tactics and artistic performance under competition conditions. The major focus remains on developing Rope Skipping skills, improving skill execution under pressure, on improving speed and fitness, and enhancing the performance elements of routines.

During times of very rapid growth some athletes may experience a decline in Rope Skipping skill performance as they learn to adjust skills to accommodate for their rapidly changing limb length. As growth slows, their former level of coordination will likely return. Helping athletes understand this can help retain them in the sport if performance slips.



About the Train to Compete Stage

Stage Objective: Fine-tune physical capacities to compete internationally. Competition and training focused on specific discipline (Speed, Freestyle, etc.) Athletes feels at home in high level competition.

At this stage athletes are training daily and competing at a high level regularly. They are on, or on the verge of being selected for, the Canadian Senior National Team. Working under the direction of a top coach they are guided by ancillary experts with specialized expertise in areas such as strength and conditioning, sport psychology, sport nutrition and hydration. They have access to sport-specialized medical and physiotherapy services, and counseling. Athletes have multi-year training plans and peak for important competitions.

Athletes travel extensively to international competitions, and are comfortable in a wide range of cultural situations, can maintain fitness and nutritional status while on the road, and have achieved balance between the demands of Rope Skipping, work (or education) and the demands of building positive romantic relationships.

Athletes may be tested for banned substances (and methods) and are comfortable with doping control procedures - understanding both their rights and responsibilities. Athletes complete requirements for their Biological Passport, and are vigilant about using only approved nutritional supplements, carrying prescriptions for any medically approved drugs, and applying for Therapeutic Use Exemptions if and when necessary.





Train to Compete



Males: 16-19
Females: 15-18

Technical/Tactical Skills

Athletes at this stage have completed adolescent growth and are striving for success at National Championships, and are competing with some success at the international level. They are striving to win and are training every day to fine tune physical conditioning as well as sport specific technical skills, and sport psychology skills. Life skills take on greater importance at this stage since athletes are far more independent from parents than in earlier stages. By this stage of athlete development some athletes may have decided to specialize in one or more Rope Skipping disciplines.

Single Rope Speed

- Single rope speed skipping
- Self-monitoring (counting)

Double Dutch (DD) Speed

- DD speed skipping
- DD speed turning
- Self monitoring (counting)

Single Rope Power

- Double Under
- Consecutive double unders
- Triple Under
- Consecutive triple unders

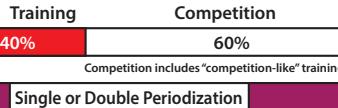
Freestyle

- CANSkip Level 10
- CANSkip Level 11
- CANSkip Level 12
- Routines mostly Level 4-5 skills
- Creates original skills/sequence independently
- Sequence (eliminate single bounce)
- Rhythm - basic skipping
- Rhythm - freestyle skills
- Coordination - with partner
- Coordination - large group
- Musicality - use music accents
- Performance passion

Key

- Introduced
- Developed
- Refined
- Mastered
- Maintained
- Not Taught

Training and Competition



Single or Double Periodization

Rules and Knowledge: Local competition rules, National rules International rules

Physical Capacity

Development Priority Low Med High

	Low	Med	High
Endurance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hand/foot speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Whole body speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Speed -Endurance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relative Strength	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strength -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive Power	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Flexibility	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note

Highest training priority is aerobic fitness (endurance), speed and explosive power, particularly explosive leg power.

Sport Psych Skills

Skill competence Int. Dev. Ref. Mas.

Positive attitude	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Goal setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Visualization	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Anxiety reduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Emotional Control	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Attention/Focus	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Decision making	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Error reduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Note

Anxiety reduction and emotional control in high pressure situations becomes critical.
Focus is on error reduction and performance elements in high pressure situations.

Life Skills

Athlete committed to high performance and making national team.
Athletes have refined sound nutrition and hydration protocols for daily living, training, competition and recovery.
Athlete is comfortable traveling independently to and from international training and competition events.
Can maintain fitness and nutrition status when on-the-road.
Athlete maintains balance between Rope Skipping, education, work and relationships.
Understands and appreciates cultural differences and is comfortable with international travel experiences.
Accepts his or her position in the sport as mentor and role model, and displays the highest ethical standards at all times.

About the Train to Win Stage

Stage Objective: Podium Performance at the highest international levels of competition: World Championships.

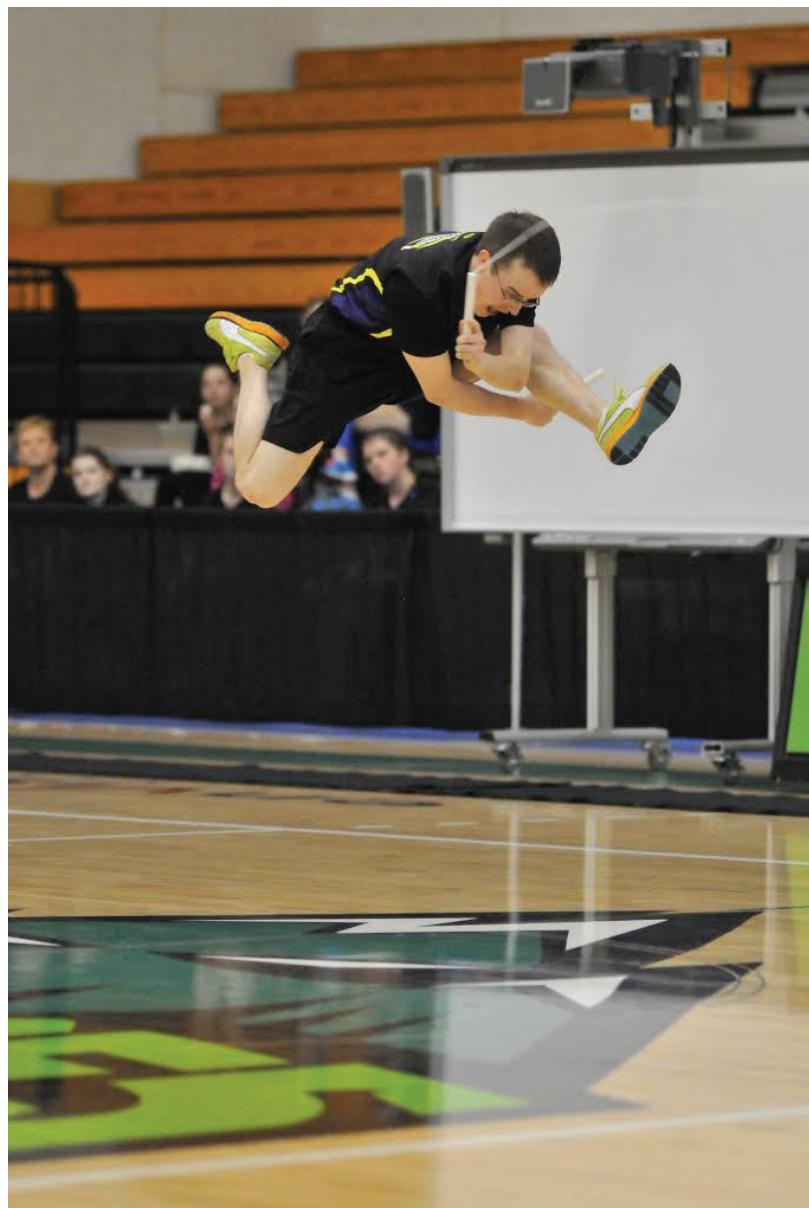
Rope Skippers at this stage are quite simply among the best in the world. They are in contention for podium performances at major international events, and everything in their training and preparation is geared to winning those flagship events. Quadrennial training plans are the norm, incorporating multiple periodization as necessary.

These athletes are supported by world-leading coaches who are on the cutting edge of new information and improved application of knowledge in their specialties. All training is based on closely monitored test-results, and is designed to achieve peak performances when it counts the most. Effective media and social media training is important.

Coaches and support teams use advanced analytics to provide real-time advantage to athletes during competitions, and to spot evolving trends in opponents' performances.

To perform at this level and beat champions from other powerhouse countries requires more than the application of all existing training and coaching knowledge - it requires pushing the envelope and making thoughtful extrapolations from what is being done - to what needs to be done in the future to achieve success.

Towards the end of this stage, athletes begin to plan their transition out of high-performance Rope Skipping.





Train to Win



Males: 23+
Females: 21+

Technical/Tactical Skills

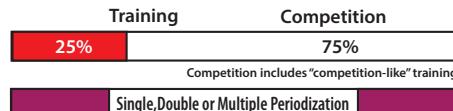
At this stage all aspects of training and preparation are geared to winning at World Championships, and this likely means specializing in one of the Rope Skipping sub-disciplines. All aspects of training are highly individualized and based on intensive testing, and the athlete works with world-leading sport scientists and ancillary support professionals in their support team. Athletes have mastered all technical skill, are able to use them effectively under the most intense pressure, and show the highest degree of musicality and performance.

Single Rope Speed	
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/> Single rope speed skipping
Double Dutch (DD) Speed	
<input type="checkbox"/>	<input type="checkbox"/> DD speed skipping
<input type="checkbox"/>	<input type="checkbox"/> DD speed turning
<input type="checkbox"/>	<input checked="" type="checkbox"/> Self monitoring (counting)
Single Rope Power	
<input type="checkbox"/>	<input type="checkbox"/> Double Under
<input type="checkbox"/>	<input type="checkbox"/> Consecutive double unders
<input type="checkbox"/>	<input type="checkbox"/> Triple Under
<input type="checkbox"/>	<input checked="" type="checkbox"/> Consecutive triple unders

Freestyle	
<input type="checkbox"/>	<input type="checkbox"/> CANSkip Level 7
<input type="checkbox"/>	<input type="checkbox"/> CANSkip Level 8
<input type="checkbox"/>	<input type="checkbox"/> CANSkip Level 9
<input type="checkbox"/>	<input checked="" type="checkbox"/> CANSkip Level 10
<input type="checkbox"/>	<input type="checkbox"/> Creativity - skill/sequence
<input type="checkbox"/>	<input checked="" type="checkbox"/> Sequence (eliminate single bounce)
<input type="checkbox"/>	<input type="checkbox"/> Rhythm - basic skipping
<input type="checkbox"/>	<input type="checkbox"/> Rhythm - freestyle skills
<input type="checkbox"/>	<input type="checkbox"/> Coordination - with partner
<input type="checkbox"/>	<input type="checkbox"/> Coordination - large group
<input type="checkbox"/>	<input type="checkbox"/> Musicality - use music accents
<input type="checkbox"/>	<input type="checkbox"/> Performance passion

Key	
<input type="checkbox"/>	Introduced
<input type="checkbox"/>	Developed
<input type="checkbox"/>	Refined
<input checked="" type="checkbox"/>	Mastered
<input type="checkbox"/>	Maintained
<input type="checkbox"/>	Not Taught

Training and Competition



Rules and Knowledge: Local competition rules, National rules International rules

Physical Capacity

	Development		
	Low	Med	High
Endurance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hand/foot speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Whole body speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Speed -Endurance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relative Strength	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strength -Endurance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive Power	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note

Since Rope Skipping athletes are not required to exert maximum strength for extended periods of time, strength-endurance remains a low training priority.

Sport Psych Skills

	Skill competence	Int.	Dev.	Ref.	Mas.
Positive attitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Goal setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Visualization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Anxiety reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Emotional Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Attention/Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Decision making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Error reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Note

All sport psychology skills need to be automated at this stage and athlete has the ability to call on previously learned skills under the most intense, high-pressure circumstances.

Life Skills

Athletes understand and implement optimal nutrition and hydration protocol for daily living, training and competition.

Athlete is comfortable traveling independently has protocol to reduce impact of jet-lag, and keeps travel documents and vaccinations current (obtaining boosters during off-season).

Athlete is well prepared for media interactions, and uses social media effectively.

Athlete achieves balance between Rope Skipping, education, work and relationships.

Post-Rope Skipping career is anticipated and planned for.

Athlete accepts role as mentor and role model for younger Rope Skippers.

About the Active for Life Stage

Stage Objective: *Being engaged in Rope Skipping for the love of competition, or for health and social benefits*

All athletes who participate recreationally or compete for fun and fitness, without an expectation of winning at the highest level, are considered to be in the Active for Life stage of Long-Term Athlete Development

There are generally two streams of rope skipping athletes in this stage, those who are:

Competitive for Life: These are athletes who compete in formal competitions organized by Rope Skipping Canada and its affiliates, but who are not on the high-performance track. They may compete in age-group or masters' events and may train hard for success. Alternatively they may never engage in training, but rather skip in competitions regularly just because they love the experience and the challenge.

Fit for Life: These athletes skip for fun or in less formal competitions in their local clubs and recreation centres simply because they love the sport, and because they derive health and social benefits from their participation.

Other Active for Life Options

In addition to playing and competing, there are many other opportunities for on-going involvement in Rope Skipping. Individuals who love the sport and can become officials or coaches, or can serve on the Boards of Directors of clubs, Provincial Rope Skipping organizations or Rope Skipping Canada. In addition, clubs are always looking for volunteers to help out at events, or to raise funds for junior programs.

Lastly, mechanisms should be created to enable interested individuals to contribute their professional expertise so as to improve the sport of Rope Skipping as a whole in Canada (e.g. in the areas of research, marketing and communications, information technology, health and wellness).



Active for Life



Males and females: Any time after onset of adolescent growth

Encouraging Participation

Active for Life athletes in Rope Skipping may be content to skip with the technical rope skipping skills they have already developed, may be content to learn informally just from watching others skip, or they may wish to receive formal instruction.

Clubs and recreation facilities are encouraged to offer single-session “Try it Out” skipping opportunities linked to short instructional opportunities teaching the basics of the sport to both young and more mature populations.

Older Canadians may also benefit from simple “learn to skip” instruction, and such programs have the potential to make the sport better known to ALL Canadians, and to improve population health.

For Fit for Life: Building a strong social component to programs is important in attracting and retaining participants.

Competitive for Life: Athletes thrive when there are well scheduled competitions. Age-based Masters competitions at the local, Provincial, National and International level; and competitions in which athletes self-select their Division of performance. Competition organizers should also consider building an active social component.



Closing Remarks

Rope Skipping Canada’s Long-Term Athlete Development framework is the first step toward evidence-based Rope Skipping programming and increasing our alignment with the wider sporting community in Canada. The aim of this framework is to ultimately create lasting positive experiences for participants of all ages and abilities that chose to engage in the sport we love. Furthermore, it allows Rope Skipping to better contribute to the health of our nation through increased physical activity participation and physical literacy development. As new knowledge emerges, this framework will be adapted accordingly to ensure we are in step and up to date with best practices in sport. We encourage your input to ensure accuracy and depth of insight. Please send your thoughts and ideas to info@ropeskippingcanada.com. We look forward to hearing from you.



Supplementary Materials and Appendix A



The Importance of Adolescence in LTAD

The adolescent phase of growth - Train to Train - is a critical stage for the development of future high performance athletes, and is often the stage at which athletes become committed to pursuing high performance or drop out of Rope Skipping. Not all youth go through adolescence at the same age, and this impacts both success and retention.

Implications for Early v Late developers

Poorly structured training and competition in which groups of athletes of the same chronological age – but who are at different stages of puberty – advantages some athletes and disadvantages others.

Males: As a group of boys start to reach puberty, those who are early developers rapidly increase in height, weight, and strength; while those who are late developers retain their smaller and weaker pre-pubescent bodies. This INITIALLY gives the early developers a major advantage in competitions that are age based, and may lead to late developers dropping out because they cannot compete. This early success of early developers may continue until the later developers catch up developmentally and surpass those who developed early. As late developers catch up and those early developers, previously accustomed to success, start to be beaten; the early developers who are no longer successful may drop out. This creates a system in which late developers drop out early, and early developers drop out late in adolescence.

Females: For females the situation is somewhat reversed. Early developing females with their wider hips and breast development may find themselves at a disadvantage compared to later developing girls who have retained narrow hips and undeveloped breasts. In this case it is increasingly likely that it will be the early developer who will drop out early in puberty. Eventually all girls will go through puberty and the playing field will be leveled, but by that time the early developing females may be lost to Rope Skipping.

Relationship between body shape and development

Rope Skipping athletes who excel come in a range of body shapes and sizes, and is important to adapt training and competition to optimize each individual athlete's physical capacity.

Body shape and maturation

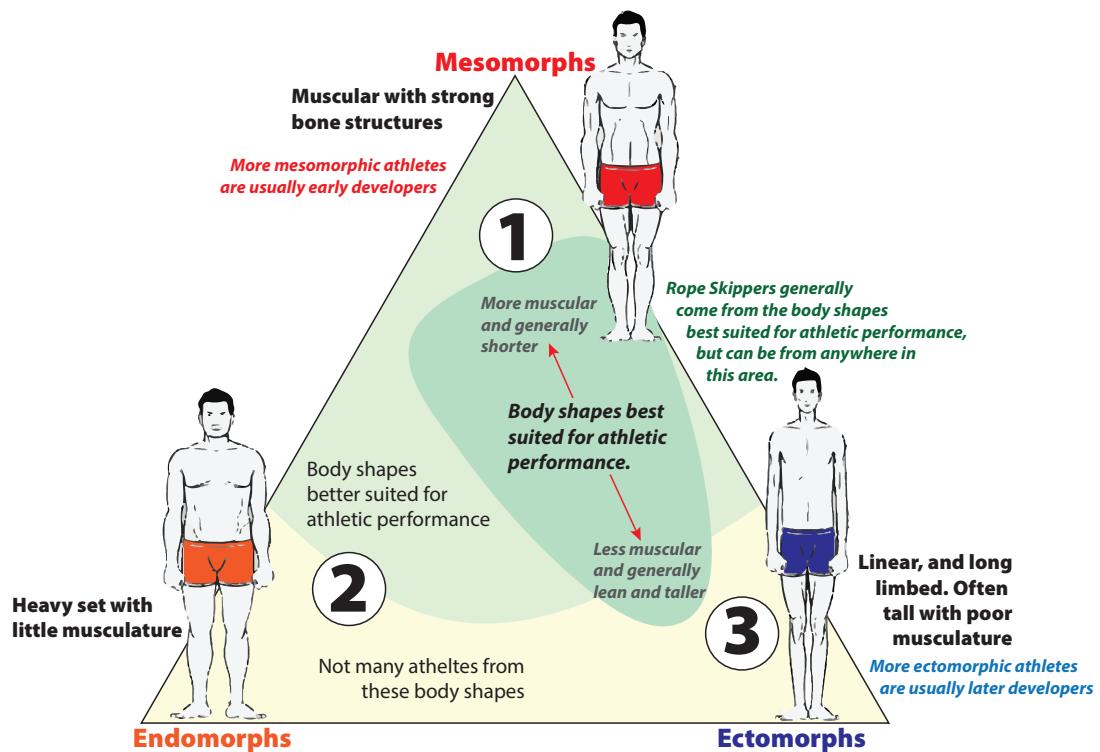
While all children eventually pass through puberty to reach their adult stature and body shape, they do not all do it to the same timetable. Some females may start their transition to adulthood as young as 8 or 9 years of age, and some males may not start their transition until age 14 or 15. In addition to this sex difference, there is a well-defined relationship between an individual's body shape and whether they are an early or late developer.

Every athlete is some combination of:

- Mesomorph: A person with a compact and muscular body build.
- Endomorph: a person with a soft round body build and a high proportion of fat tissue.
- Ectomorph: a person with a lean and linear body build

Different body shapes are favoured in different sports, although most athletes in most sports have a significant degree of mesomorphy and associated musculature. Rope Skipping athletes may be at the stockier more compact end of the mesomorph-ectomorph spectrum, or may fall at the more linear – taller and leaner – end of the spectrum.

In general, those young athletes who are more mesomorph tend to enter puberty earlier (early maturation) than those who are more ectomorph (late maturation), and this has serious implications for both training and competition.



Implications for Training: Windows of optimum trainability

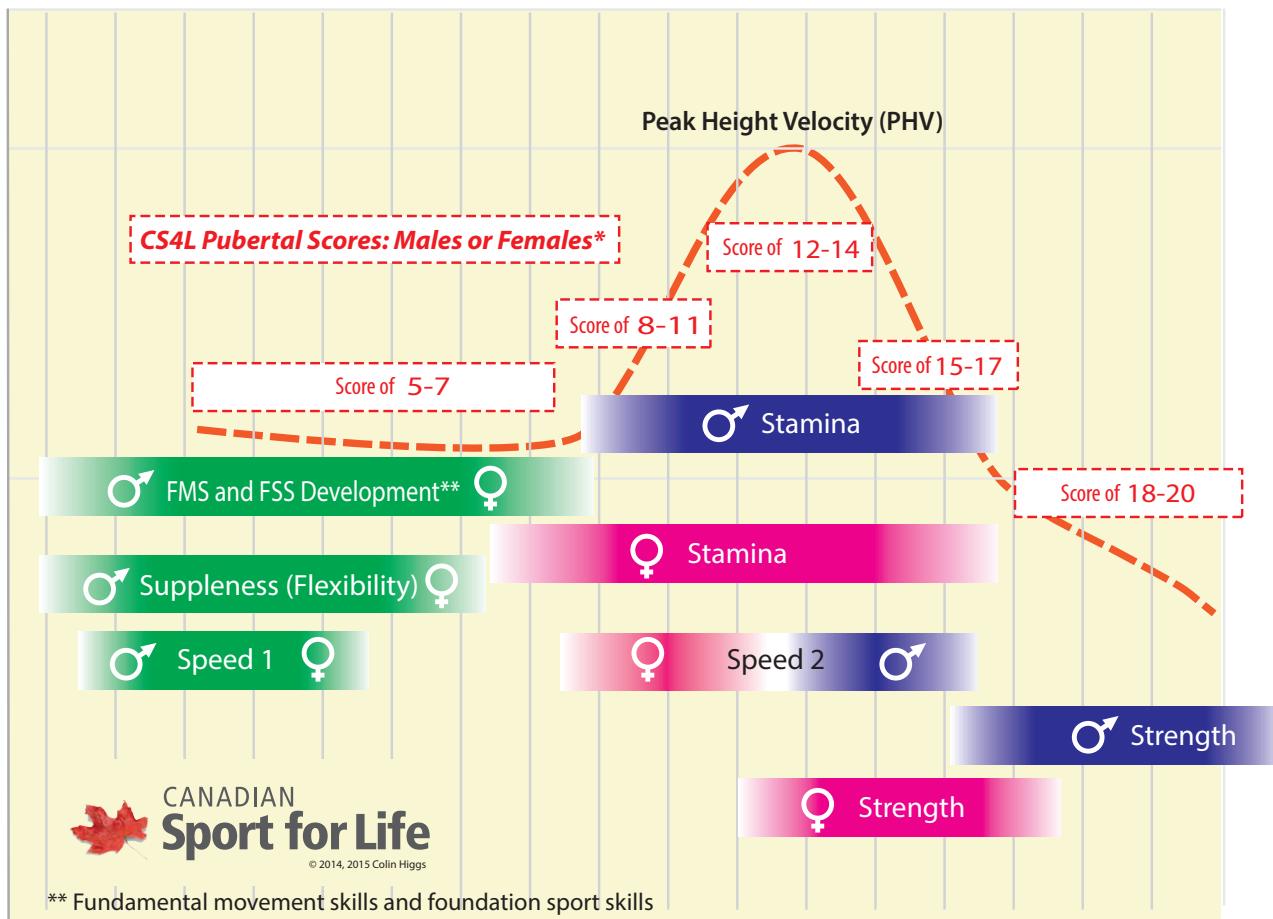
Poorly structured training in which groups of athletes of the same chronological age – but who are at different stages of puberty – misses optimal development of individual athletes because windows of optimum trainability are not effectively used.

Not everyone is equally convinced of the existence of identifiable windows of optimum trainability, which are periods during which a developing athlete shows an accelerated adaptation to training. Despite uncertainty there are still very good reasons to design training programs to take advantage of potential gains. If windows of trainability DO exist there are performance advantages to be gained

by exploiting them, and if they do NOT exist there is NO downside to training that assumes that they do.

The most well established windows of trainability are shown in the diagram below, relative to an individual's growth curve during adolescence, and to use this information it is important to know with some degree of accuracy where on the journey through puberty each athlete has reached.

Careful height measurement of the developing athlete over an extended period of time is the



* Based on scores from the Canadian Sport for Life Puberty Self-Report Questionnaire

more accurate of the two methods and can be exceptionally useful when the coach and athlete have a multi-year relationship. The use of this method is fully described in the Canadian Sport for Life document, "The Role of Monitoring Growth in Long-Term Athlete Development" (Istvan Balyi & Richard Way; available free of charge from www.canadiansportforlife.ca/resources), but in simple terms the athlete is accurately measured in a standardized way every 3 months (if possible) and the recorded heights are graphed. From the graph, a sharp, sustained, upsurge in height provides an accurate indication of when the adolescent growth spurt is starting, and with continued tracking of height, both the age of Peak Height Velocity (PHV) and the end of puberty, can be accurately estimated. This growth-tracking method is far less useful in the more typical community coaching

situation, particularly in team sports, where the coach may only have contact with his or her athletes for the 4 to 5 month season for the sport in question. Under these circumstances the coach needs a simple but effective way of determining which athletes are pre-pubertal, which are just starting their adolescent growth spurt, those who are around the age of PHV, those whose growth is slowing, and those who have completed their adolescent growth spurt.

Athlete Self-Assessment of Puberty: By answering a few simple questions about themselves athletes can provide a usefully accurate picture of their pubertal status. This process is non-invasive and in addition to providing critical information to the coach, can provide insight about their own development to the athlete.

The simple questionnaires for male and female athletes are shown in below, along with their respective scoring system. The scoring system is quite arbitrary, and is meant only to provide a reasonable estimate of where the athlete is in the process of puberty. To keep things simple, only five "divisions" of pubertal status are used.

In general, athletes with a congenital disability follow the same pathway through puberty as their peers. For reasons that are not well understood, athletes with spina bifida, typically reach puberty slightly earlier than the norm, and athletes with intellectual impairments start puberty earlier than average, but end puberty slightly later.

Implications for Competition

There is overwhelming evidence that age-group competition disadvantages late developing males and early developing females, and there is a considerable body of evidence from a wide range of sports that age-group winners, particularly in the younger age-groups, rarely become national or international champions.

There is also the issue of a relative age effect on performance that has been identified in many sports. A relative age effect is when athletes born in certain months of the year are over-represented in terms of success compared to athletes born in other months.

This effect is caused when sports have a specific date in any year on which an athlete's age determines the age-group in which they play throughout a season. Under these circumstances youth who are oldest within the age group have up to one or two year's more growth, training, and competition experience than those who are born just the other side of the cut-off date. In Rope Skipping the cut-off date for age group competition is August 31, meaning that there is an advantage from being born in July or August.

Therefore as part of its Long-Term Athlete Development restructuring, Rope Skipping Canada will be examining its competition rules and regulations to develop competitions that are better geared to creating long-term success.



Female: Self-Assessment of Puberty

1. How old are you? _____ years _____ months. 2. How tall are you? _____ ft. _____ in. 3. How Much do you weigh? _____ pounds

To make sure your sport training is best suited to your individual needs it is really helpful for your coach to know how your body is changing as you go through adolescence. By answering the questions below, your coach can tell if you are an early, average or late developer.

Please mark your answers with an **X**, or leave the answer **BLANK** if you don't want to answer.

4. Would you say your growth in height.....

- 1 Has not yet begun to spurt or grow really fast
- 2 Has barely started
- 3 Has definitely started
- 4 Seems completed

6. Have you noticed any skin changes, especially pimples.

- 1 Not yet started showing changes
- 2 Has barely started showing changes
- 3 Skin changes are definitely underway
- 4 Skin changes seem completed

8. Have you started your periods (begun to menstruate)?

- 4 Yes

How old were you when you had your first period?
 Years, and Months

- 1 No

5. Would you say that your body hair has.....

- 1 Has not yet started growing
- 2 Has barely started growing
- 3 Is definitely underway
- 4 Seems completed

7. Have your breast begun to grow?

- 1 Not yet started growing
- 2 Has barely started changing
- 3 Breast growth is definitely underway
- 4 Breast growths seem completed

9. Do you think your development is any earlier or later than most other girls your age?

- Much earlier
- Somewhat earlier
- About the same
- Somewhat later
- Much later

Instructions:

For each of the questions numbered 4 to 8, you will see a number beside each box. That number is your score on the question. Add up your scores for each answer you gave.

Your pubertal score

Interpreting your score

- | | |
|----------|------------------|
| 5 to 7 | Start of puberty |
| 8 to 11 | Early pubertal |
| 12 to 14 | Mid pubertal |
| 15 to 17 | Late pubertal |
| 18-20 | Post pubertal |

This survey based on the following references:

Mary A. Carskadon, and Christine Acebo, (1993). A Self-Administered Rating Scale for Pubertal Development. Journal of Adolescent Health Vol.14:190-195.

Anne C. Petersen, Lisa Crockett, Maryse Richards, and Andrew Boxer. (1988). A Self-Report Measure of Pubertal Status: Reliability, Validity, and Initial Norms. Journal of Youth and Adolescence, Vol. 17, No. 2.

Scoring for CS4L - Interpreting your score - has not been independently validated



Male: Self-Assessment of Puberty

1. How old are you? ____ years ____ months. 2. How tall are you? ____ ft. ____ in. 3. How much do you weigh? _____ pounds

To make sure your sport training is best suited to your individual needs it is really helpful for your coach to know how your body is changing as you go through adolescence. By answering the questions below, your coach can tell if you are an early, average or late developer.

Please mark your answers with an **X**, or leave the answer **BLANK** if you don't want to answer.

4. Would you say your growth in height.....

- 1 Has not yet begun to spurt or grow really fast
- 2 Has barely started
- 3 Has definitely started
- 4 Seems completed

5. Would you say that your body hair has.....

- 1 Has not yet started growing
- 2 Has barely started growing
- 3 Is definitely underway
- 4 Seems completed

6. Have you noticed any skin changes, especially pimples.

- 1 Not yet started showing changes
- 2 Has barely started showing changes
- 3 Skin changes are definitely underway
- 4 Skin changes seem completed

7. Have you noticed a deepening of your voice?

- 1 Not yet started to change
- 2 Has barely started showing any changes
- 3 Voice change is definitely underway
- 4 Voice change seem completed

8. Have you begun to grow hair on your face?

- 1 Not yet started growing hair
- 2 Have barely started growing hair
- 3 Facial hair growth is definitely underway
- 4 Facial hair growth seems completed

9. Do you think your development is any earlier or later than most other boys your age?

- Much earlier
- Somewhat earlier
- About the same
- Somewhat later
- Much later

Instructions:

For each of the questions numbered 4 to 8, you will see a number beside each box. That number is your score on the question. Add up your scores for each answer you gave.

Your pubertal score

Interpreting your score

- 5 to 7 Start of puberty
- 8 to 11 Early pubertal
- 12 to 14 Mid pubertal
- 15 to 17 Late pubertal
- 18-20 Post pubertal

This survey based on the following references:

Mary A. Carskadon, and Christine Acebo, (1993). A Self-Administered Rating Scale for Pubertal Development. *Journal of Adolescent Health Vol.14:190-195.*

Anne C. Petersen, Lisa Crockett, Maryse Richards, and Andrew Boxer. (1988). A Self-Report Measure of Pubertal Status: Reliability, Validity, and Initial Norms. *Journal of Youth and Adolescence, Vol. 17, No. 2.*

Scoring for CS4L - Interpreting your score - has not been independently validated

Sport Medicine Issues in Rope Skipping

Female Urinary Incontinence

It is now well established that intermittent urinary incontinence is a common occurrence among female athletes during physical activity participation¹. The prevalence ranges from 28-80%, and is highest among those involved in high-impact activities such as trampoline, gymnastics, hockey and ballet¹. Unfortunately, females who are affected may be discouraged from participating in sports and physical activities that trigger urinary leakage². Rope Skipping is very high impact and consequently female athletes may experience some urinary leakage while rope skipping.

Given Rope Skipping's high percentage of female athletes and its high impact nature, there is a need for increased awareness and education about sport-associated female urinary incontinence within the Rope Skipping community. Emerging evidence suggests that select exercises done on a regular basis can prevent sport-associated female urinary incontinence³. Research is currently underway to further investigate the prevalence, severity and preventive possibilities for this issue in Rope Skipping to ensure a positive experience for all female participants.

References:

1. Goldstick O, Constantini N. Urinary incontinence in physically active women and female athletes. Br J Sports Med. 2014;48(4):296-298.
2. Nygaard I, DeLancey JOL, Arnsdorf L, Murphy E. Exercise and Incontinence. Obstet Gynecol. 1990;75:848.
3. Da Roza T, De Araujo MP, Viana R, et al. Pelvic floor muscle training to improve urinary incontinence in young, nulliparous sport students: A pilot study. Int Urogynecol J Pelvic Floor Dysfunct. 2012;23(8):1069-1073.

Rope Skipping and True Sport

As a sport, Rope Skipping strives to develop good athletes and good people and one way to do this is to ensure that Rope Skipping programs and activities follow the True Sport principles. The True Sport Principles are universal. The principles can be brought to life in any sport at any level, from playground to podium.

For sport to be truly good and have the opportunity to make the greatest difference, all seven of these principles need to be applied at all times. The True Sport Principles are:

1. Go for It

Always strive for excellence and rise to the challenge, but never at the expense of others. Discover how good you can be.

2. Play Fair

Play honestly and obey the rules, in letter and spirit. Winning is only meaningful when competition is fair.

3. Respect Others

Show respect for everyone involved in creating a sporting experience, both on the field and off. Win with dignity and lose with grace.

4. Keep it Fun

Find the joy of sport and have a good time. Keep a positive attitude and look to make a positive difference, on the field and in your community.

5. Stay Healthy

Place physical and mental health above all other considerations and avoid unsafe activities. Respect your body and keep in shape.

6. Include Everyone

Share sport with others, regardless of creed, ethnicity, gender, sexual orientation or ability. Invite everyone into sport to make it more meaningful for the whole community.

7. Give Back

Always remember the community that supports your sport and helps make it possible. Find ways to show your appreciation and help others get the most out of sport.

Clubs and organizations wanting to learn more about True Sport are encouraged to visit the organization's website at <http://truesportpur.ca/>.



Appendix A

Reference List for Benefits of Rope Skipping

Cardio-vascular Health: References 1 to 6

Hand/foot speed: Anecdotal evidence only

Self-confidence: References 7 and 8

Body coordination: References 9 to12

Timing: No evidence yet

Bone health: References 13 to15

Strength and power: References 16 to 18

1. Kim ES, Im J-A, Kim KC, et al. Improved insulin sensitivity and adiponectin level after exercise training in obese Korean youth. *Obesity*. 2007;15(12):3023-3030.
2. Lee KJ, Shin YA, Lee KY, Jun TW, Song W. Aerobic exercise training-induced decrease in plasma visfatin and insulin resistance in obese female adolescents. *Int J Sport Nutr Exerc Metab*. 2010;20(4):275-281.
3. Chen CC, Lin SY. The impact of rope jumping exercise on physical fitness of visually impaired students. *Res Dev Disabil*. 2011;32(1):25-29.
4. Chen C-C, Lin Y-C. Jumping Rope Intervention on Health-Related Physical Fitness in Students with Intellectual Impairment. *J Hum Resour Adult Learn*. 2012;8(1):56-62.
5. Ghorbanian B, Ravassi A, Reza M, Hedayati M. The effects of rope training on lymphocyte ABCA1 expression, plasma ApoA-I and HDL-c in boy adolescents. *Int J Endocrinol Metab*. 2013;11(2):76-81.
6. Zakavi I, Bizhani B, Bani Hashemi M, Ghaisii E. The Effect of an Eight-Week Rope Skipping Exercise Program on Interleukin-10 and C-Reactive Protein in Overweight and Obese Adolescents. *Jentashapir J Heal Res*. 2015;6(4):e24720.
7. Hatfield B, Vaccaro P, Benedict G. Self-concept responses of children to participation in an eight-week precision jump-rope program. *Percept Mot Skills*. 1985;61(3):1275-1279.
8. Ha AS, Burnett A, Sum R, Medic N, Ng JY. Outcomes of the rope skipping "STAR" programme for schoolchildren. *J Hum Kinet*. 2015;45(1):233-240.
9. Ozer D, Duzgun I, Baltaci G, Karacan S, Colakoglu F. The effects of rope or weighted rope jump training on strength, coordination and proprioception in adolescent female volleyball players. *J Sports Med Phys Fitness*. 2011;51(2):211-219.
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11. Azarhazin H, Siavoshi E, Zareian E. The effect of rope-jumping plan on motor proficiency of fourth grade students. *Int J Biol Pharm Allied Sci*. 2015;4(9):5801-5811.
12. Trecroci A, Cavaggioni L, Caccia R, Alberti G. Jump Rope Training: Balance and Motor Coordination in Preadolescent Soccer Players. *J Sport Sci Med*. 2015;14(4):792-798. <http://search.ebscohost.com/login.aspx?direct=true&d-b=sph&AN=111246123&site=ehost-live>.
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14. Arnett MG, Lutz B. Effects of rope-jump training on the os calcis stiffness index of postpubescent girls. *Med Sci Sports Exerc*. 2002;34(12):1913-1919.

15. Sandstedt E, Fasth A, Fors H, Beckung E. Bone health in children and adolescents with juvenile idiopathic arthritis and the influence of short-term physical exercise. *Pediatr Phys Ther.* 2012;24(2):155-161.
16. Duzgun I, Baltaci G, Colakoglu F, Tunay VB, Ozer D. The Effects of Jump-Rope Training on Shoulder Isokinetic Strength in Adolescent Volleyball Players. *J Sport Rehabil.* 2010;19(2):184-199.
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18. Arazi H, Jalali-fard A, Abdinejad H. A comparison of two aerobic training methods (running vs rope jumping) on health-related physical fitness in 10 to 12 years old boys. *Phys Act Rev.* 2016;4:9-17.

The references listed here are provided so that interested readers can learn more about the science that supports Rope Skipping. Rope Skipping Canada does not endorse any of these references and readers should judge the quality of the reported research for themselves.