CRICKET CANADA

LONG-TERM ATHLETE DEVELOPMENT

JOIN THE MOVEMENT

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Cricket Canada
Long-Term Athlete Development
July 2014

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LETTER FROM THE LTCD PROJECT LEADER

The Cricket Canada workgroup is pleased to launch its Long-Term Cricket Development (LTCD) model for cricket in Canada. The program provides all stakeholders involved with the outline for development of cricketers from grassroots to international. This very significant innovation for Cricket Canada is being done in association with Sport Canada.

The LTCD document will change the game's future nationally and will influence the way development programs are conducted since its contents are based on the latest scientific evidence and best practice. It will change practice and match preparation routines by fostering a new culture. As well it will improve the level of our competitions throughout each province by creating an attitude of excellence.

LTCD has been developed because the many traditional methods of cricket development in Canada have not produced the expected results and have brought about reduced participation numbers, poor results and injuries. The LTCD approach will help to maintain participation levels, improve results and protect our athletes from injury and burn out.

Besides encouraging lifelong participation, we believe that implementing the principles contained in this document will create success for cricketers locally and internationally. All Provincial Associations and stakeholders involved in the game will work together to ensure success in our sport.

Ingleton Liburd
Chair, LTCD Steering Committee

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MESSAGE FROM THE PRESIDENT OF CRICKET CANADA

The Long Term Athlete Development (LTAD) model is a framework that reflects the Canadian Sport Policy approach to shared leadership and collaboration amongst all stakeholders to achieve the goals of enhanced participation, excellence, capacity, and interaction in sport.

The model takes into consideration the unique nature of Canada's sport system and culture; within our sport, Cricket Canada has created its own model – "Long Term Cricket Development" – to address its quest to lead athletes to world-class results. We have used the LTAD framework to build a truly competitive program, and its development and implementation is imperative to fostering the culture of excellence needed to drive Cricket Canada and its athletes to the highest level possible. No longer will we focus on the short-term needs of athletes but, rather, on the long-term health of sport and development of our sport at all levels.

This Long Term Cricket Development document provides an introduction to the challenges and tasks that Cricket Canada and its member associations will face in developing a culture of excellence at the highest levels of competition, while at the same time providing the opportunity for all Canadians to enjoy participation in one of Canada's oldest sports. I would like to thank Sport Canada, as well as those who worked hard to develop this document for their kind support and hard work.

Vimal Hardat
President, Cricket Canada

ACKNOWLEDGEMENTS

Cricket Canada would like to acknowledge its working group of Ingleton Liburd - Project Leader, Ron Dipchand - Coaching Coordinator, Shelley Boardman - former Women's Coordinator, and Pubudu Dassayanke - former National Coach, who all contributed to our Long Term Cricket Development document. We would also like to thank our expert advisors Istvan Balyi and Colin Higgs for their guidance throughout this project. Cricket Canada is also indebted to all the Provincial Associations, coaches and volunteers for taking time to review and give their input to enable us to launch this document.

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WHAT IS LONG-TERM ATHLETE DEVELOPMENT (LTAD)?

The LTAD model is predicated on the idea that each participant's stage of physiological, mental/ cognitive, and emotional development must be identified and taken into account when developing his or her optimal training, competition and recovery program.

The model is inclusive: the principles which underpin LTAD are equally applicable to people of all ages and abilities, regardless of whether they are participating in elite sport or recreational physical activity.

This model represents a paradigm shift, a philosophically different approach to sport and physical activity. This document will explain the model and its potential for enhancing our enjoyment of sport and physical activity.

One of the goals of the LTAD model is Physical Literacy, along with full sport system alignment and integration. Physical literacy is defined as the mastery of fundamental movement skills and fundamental sport skills. A physically literate person moves with poise, economy and confidence in a wide variety of physically challenging situations, is perceptive in reading all aspects of the physical environment. He or she anticipates the movement needs or possibilities, and responds appropriately with intelligence and imagination." (Whitehead, 2001)

To better understand the LTAD model, and its role in helping participants to achieve these goals, we have identified ten key factors which influence the model and set it apart from other long-term development models. These factors are outlined in later sections.

LTCD is the application of Long-Term Athlete Development in Cricket.

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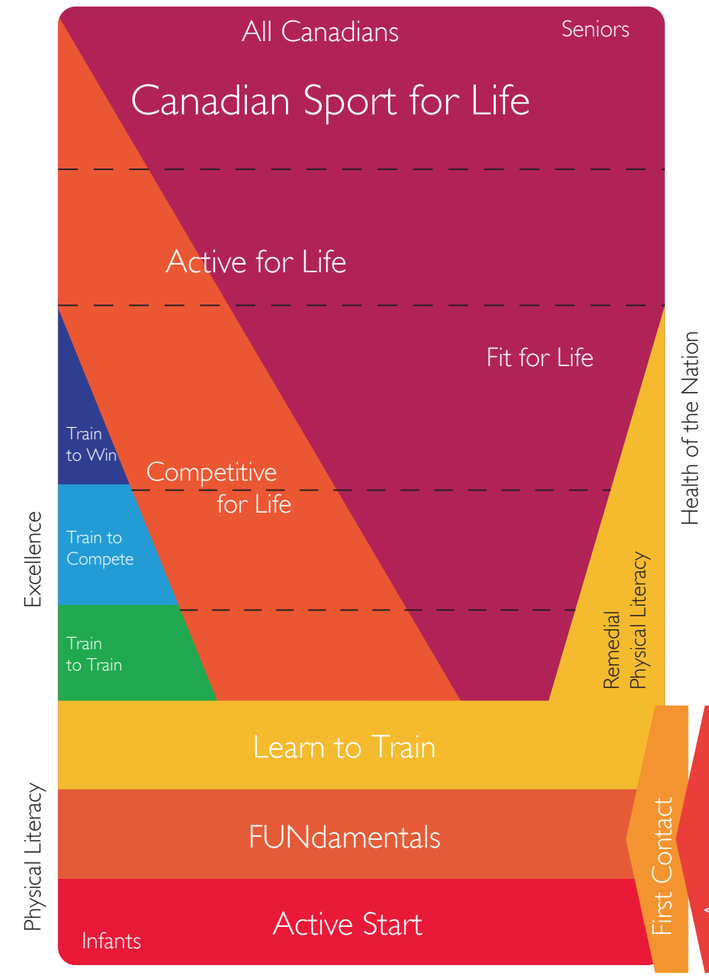
FIGURE 1.



The Active Start, Fundamentals and Learn to Train stages of LTAD emphasize Physical Literacy. The Train to Train, Train to Compete and Train to Win stages focus on excellence, while the transition to the Active for Life stage can be made at any time, encouraging lifelong participation in physical activity and/or sport. The Awareness and First Contact refer specifically to disability sports but cricket needs to increase the overall awareness of the game and ensure that players' first contact with the sport is a positive experience.

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THE TEN S's OF TRAINING AND PERFORMANCE

The original Five Ss of Training and Performance which include stamina, speed, strength, skill, and suppleness, were first introduced in the document entitled "Canadian Sport for Life: Long-term Athlete Development". Each of the Five Ss' is trainable throughout a player's lifetime. Training the Five Ss should be synchronized with each player's developmental progress. Players will gain the maximum benefit if coaches coordinate training with specific physiological and psychological windows of trainability, also referred to as sensitive periods. The term indicates periods of accelerated adaptation to training during pre-puberty, puberty and early post-puberty. The windows of trainability are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

"The sensitive periods in trainability are referred to the windows of accelerated adaptation to training."

The timing of sensitive periods varies between individuals since every/player's genetic makeup is unique. While sensitive periods follow the general stages of human growth and maturation, scientific evidence shows that humans vary considerably in the magnitude and rate of their response to different training stimuli during all stages. Some players' potential for excellence is evident by age eleven, whereas others don't show promise until age fifteen or sixteen. Consequently, a long-term approach to athlete/player development is needed to ensure that players who respond slowly to training stimuli are not short-changed in their development.

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FIGURE 3.

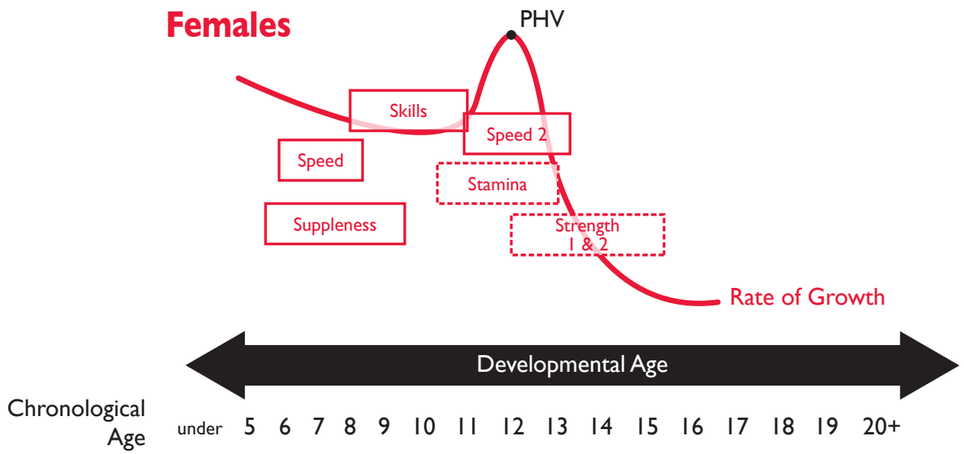
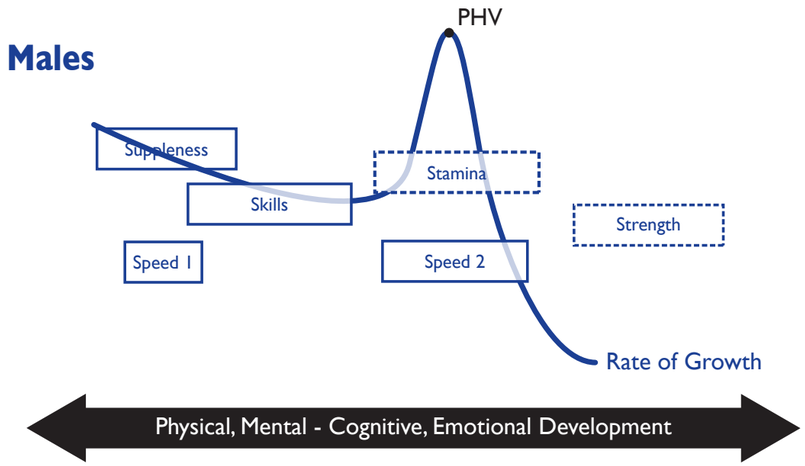


FIGURE 4.



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Stamina (Endurance)

The sensitive period for training stamina occurs at the onset of PHV. As players enter PHV, they should increase their focus on aerobic capacity training (continuous or aerobic interval workloads). When their rate of growth decelerates, they should be progressively introduced to aerobic power training (anaerobic interval workloads).

Endurance is an important factor in cricket training and performance. Stamina is required due to the duration of cricket matches. Stamina plays an important role in recovery from daily training and between competitions.

A reminder: The windows of trainability are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

Strength

There are two sensitive periods of trainability for strength in girls: immediately after PHV or after the onset of menarche. Boys have one strength window, and it begins 12 to 18 months after PHV. Strength is also an important factor for cricket in training and competition. Strength demands are identified on position-specific needs.

A reminder: The windows are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

Speed

There are two critical windows of trainability for speed. For girls, the first speed window occurs between the ages of six and eight, and the second occurs between 11 and 13 years. For boys, the first speed window occurs between the ages of seven and nine, and the second window occurs between 13 and 16 years. During the first speed window, training should focus on developing agility and quickness (duration of the intervals is less than five seconds); during the second speed window, training should focus on developing the anaerobic and lactic power energy system (duration of the intervals is 10-15 seconds).

It is highly recommended that speed be trained frequently, on a regular basis. For example speed training can be conducted during each training session as part of the warm up. Conducting speed training towards the end of the warm up or immediately after the warm up is preferable, since players are fresh and are not experiencing any central nervous system or metabolic fatigue. . The volume of speed training should be low, and allow full recovery between exercises and sets.

Short acceleration with proper posture and elbow and knee drive, take-off speed and segmental speed should be trained regularly outside of the window of optimal trainability for speed. In addition, proper blocks of training should be allocated to speed training during the periodized annual training, competition and recovery program according to seasonal and the sport-specific requirements.

A reminder: The windows are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

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Skill

Girls and boys both have one window of trainability for optimal skill training. For girls, this window occurs between the ages of eight and eleven, while for boys it occurs between the ages of nine and twelve, or more precisely before the onset of the growth spurt. During this sensitive period, young players should be developing physical literacy. Physical literacy includes the development of the **fundamental movement skills** and **fundamental sports skills** that permit a child to move confidently and with control, in a wide range of physical activity and sport situations. It also allows children to read what is going on around them in an activity setting and react appropriately to those events. Physical literacy is the foundation of both lifelong involvement in physical activity and high performance participation.

A reminder: The windows are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

Suppleness

The sensitive period of trainability for suppleness occurs between the ages of six and ten in both girls and boys. However, special attention should also be paid to flexibility during the growth spurt, due to the sudden growth of bones, which creates stresses on muscles, ligaments and tendons.

A reminder: The windows are fully open during the sensitive periods of accelerated adaptation to training and partially open outside of the sensitive periods.

An additional Five S's have been introduced to create a holistic training, competition and recovery program and to encourage a healthy lifestyle. These include Structure/ Stature, (p)Sychology, Sustenance, Schooling, and Socio-cultural factors.

Structure / Stature

This component addresses the six phases of growth and development, and are related to the windows of optimal trainability: The six phases include: phase one: very rapid growth and very rapid deceleration; phase two: steady growth- phase three: rapid growth- Phase four: rapid deceleration; phase five: slow deceleration; Phase six: cessation of growth.. The term "stature" refers the important role height plays in identifying the windows of optimal trainability and the sensitive periods for development of the Five Ss. By recording a player's height at regular intervals, before, during, and after maturation, parents and coaches can identify PHV onset, and then determine the sensitive periods for strength, stamina, and skill development. Diagnostics to identify individually relevant sensitive periods of accelerated adaptation to training are essential to the design and implementation optimal training, competition and recovery programs.

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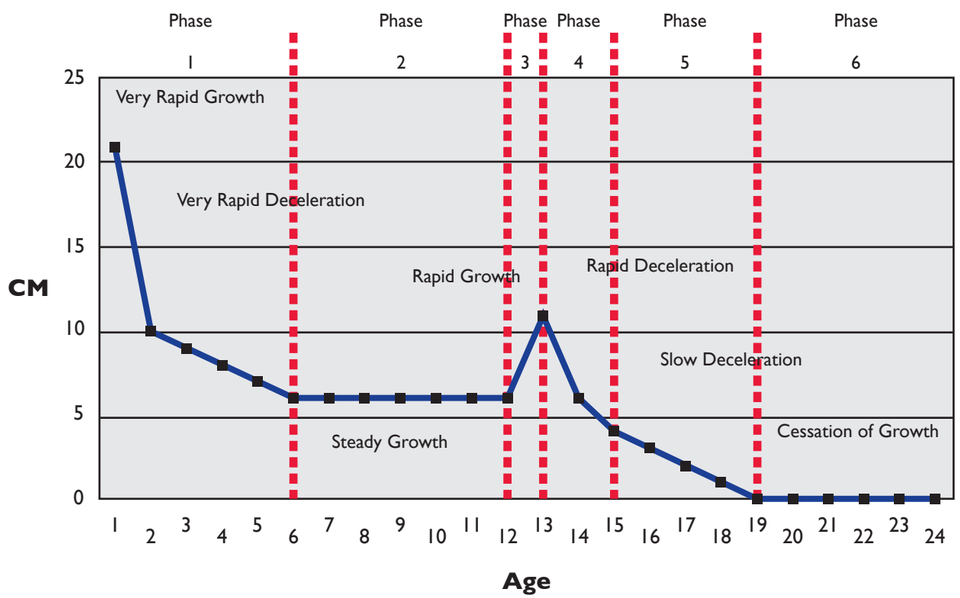
FIGURE 5. - THE SIX PHASES OF GROWTH

(ADAPTED FROM 'THE ROLE OF MONITORING GROWTH IN LTAD')



Phase 1:
Chronological age 0 to 6
(Active Start Stage in LTCD)

This phase is characterized by very rapid growth during infancy and very rapid deceleration after age two. It is recommended that measurement of standing height and weight are carried out every birthday.

Phase 2:
Age 6 to the onset of the growth spurt
(FUNdamental and Learn to Train Stage in LTCD)

This phase is characterized by steady growth (an average of 5–6 cm per year). It is recommended that measurement of standing height, sitting height and arm span are carried out at every birthday. If measurements are conducted at a club, the first measurement of the year should be done at the beginning of the annual training season. Once the onset of PHV is identified, measurements of standing height, sitting height and arm span should be taken every three months.

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During this phase, the sensitive periods for skill, speed and suppleness should be identified by chronological age.

Phase 3:
From the onset of GS to PHV
(Train to Train Stage in LTCD)

This phase is characterized by rapid growth. In the first year of the spurt the average growth is 7 cm and then about 9 cm in the second year in boys and roughly 6 and 8 cm in girls (Tanner, 1989). It is recommended that measurements of standing height, sitting height and arm span are recorded quarterly in order to monitor which part of the body is growing the fastest. The change in the center of gravity, leg length and arm span will help the coach understand the why athletic performance is altered. For example, an athletes/players may exhibit loss of coordination and speed due to rapid growth.

During this phase the aerobic capacity window should be identified by the onset of PHV and the second sensitive period for speed by chronological age (Balyi & Ross, 2009a; Balyi & Ross, 2009b; Stafford, 2005).

Phase 4:
From PHV to slow deceleration
(Train to Train Stage in LTCD)

This phase is characterized by a deceleration of growth rate: about 7 cm in boys and 6 cm in girls in the first year after the peak and 3 cm in next year (Tanner, 1989). It is recommended that measurements of standing height, sitting height and arm span are taken quarterly to monitor deceleration.

During this phase, the sensitive period for aerobic power and strength should be identified, as previously described. Aerobic power should be trained after PHV. For females, strength training can be prioritized immediately after PHV or at the onset of the menarche. For males, strength training should be a priority 12–18 months after PHV (Ross & Marfell-Jones, 1991; Beunen & Thomis, 2000; Anderson & Bernhardt, 1998).

Phase 5:
From slow deceleration of growth to cessation of growth
(Train to Compete Stage in LTCD)

A slow deceleration of growth will occur one or two years after PHV and continue until the player reaches maturity. (Tanner, 1989).

It is recommended that training loads and intensities be determined gradually by diagnostics. Since all systems now are fully trainable, testing will identify individual and team training priorities.

Phase 6:
Cessation of growth
(Train to Win Stage in LTCD)

During this phase it is recommended that the individual diagnostics of the strengths and weaknesses of the athlete/player determine training loads and intensities.

In summary, the biological markers of the onset of PHV, PHV and the onset of menarche monitored by the described measurements should allow the coach to optimize training for the pubescent athlete and the coach should use the opportunity provided by the sensitive periods of accelerated adaptation training.

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(p)Sychology

Sport involves both physical and mental challenges. The ability to maintain high levels of concentration, remain relaxed, and have the confidence to succeed are psychological skills that are advantageous in sport and in everyday life. Since athletic success is contingent upon the mastery of a repertoire of psychological skills, training programs should emphasize the key mental components identified by sport psychologists. These include concentration, confidence, motivation and handling pressure. The focus of psychological training will be different in each state of LTCD. During the first two stages of LTCD, the focus is on acquisition of basic psychological skills, such as having fun, and respecting opponents. In later stages, skills such as visualization techniques, self-awareness, goal setting, relaxation and positive self-talk are introduced to players. These skills are then practiced and tested in increasingly difficult competitive environments. Ultimately the planning, implementing and refining of mental strategies for high level competition has an important impact on podium performances. A psychological training program is critical at all stages of LTCD.

Sustenance

The term sustenance encompasses a broad range of topics with the central theme of physical and psychological regeneration. Sustenance includes nutrition, hydration, rest, sleep and regeneration. All of these areas should be addressed in LTCD training plans. The areas focused on and the content of the sustenance portion of training will change as the player progresses through the LTCD stages. Sustenance underlines the need for players to experience optimal recovery management. The concept of recovery management acknowledges that successful athletic performance hinges on allowing proper recovery after training and competition. It is a "24/7" model which places a high degree of importance on the player's activities away from the field of play.

Fatigue is another aspect of sustenance and recovery management. Player fatigue should be regularly monitored by cricket coaches and parents. There are many types of fatigue including metabolic fatigue, neurological fatigue, psychological fatigue, environmental and travel fatigue. While overtraining or over-competing can lead to burn-out, improperly addressing sustenance can have a similar result.

Schooling

When designing training programs for young players attending school, the demands of school must be taken into consideration. This involves integrating school academic loads, duties, school related stresses, and the timing of exams with the cricket training annual plan. Overstress should be monitored carefully. Overstress refers to the everyday stresses of life, such as schooling, exams, peer group pressure, family, boyfriend or girlfriend relationships, as well as increased training volume and intensities.

Whenever possible, training camps and competition tours should complement, not conflict with the timing of major academic events, such as school tests, examinations or holidays. The extra demands placed on players by participation in school sports and physical education classes should also be taken into account.

Interference from other school sports should be minimized, communication between coaches who are responsible to deliver the training and competition programs are essential. A good balance should be established between all factors and the coach and the parents should be working on this together.

Socio-Cultural

The socio-cultural aspects of sport are significant and must be managed through proper planning. Socialization via sport will ensure that general societal values and norms will be internalized via sport participation. This occurs as an athlete progresses through the LTCD stages.. Socialization should be positive and result in a broadening of the player's perspectives, including an increased awareness of and appreciation for ethnicity and national diversity. Within the travel schedule recovery can include learning more about the competition location including its history, geography, architecture, cuisine, literature, music and visual arts. Proper annual planning can allow sport to offer much more than just a commute between the hotel room and the field of play.

Sport socialization must also address sport sub-culture. Coaches and parents must discourage group dynamics which create a culture of abuse or bullying. Ethics training should be integrated into training and competition plans at all stages of LTCD.

In summary socio-cultural activity should not be regarded as a negative distraction or as interfering with training and competition activities. It is an important component of the athlete's personal development..

Children often choose to play a sport after the windows of optimal trainability for speed, skill, and suppleness have past. These children are therefore dependent on schools, recreation programs, and other sports organizations to provide timely training in these areas. LTCD advocates that sports build relationships with these groups to promote and support appropriate training. If athletes miss the above-mentioned windows of optimal trainability entirely, the design of individualized programs to remedy any shortcomings is recommended.

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BUILDING A PATHWAY: THE SEVEN STAGES OF CANADIAN CRICKET LTAD

As mentioned previously, the stages of LTCD are based on the concept that sports can be classified as early or late specialization sports. The Canadian Sport for Life, Long-term Athlete Development distinguishes seven stages of athlete development:

Stage One: Active Start
Stage Two: Fundamental
Stage Three: Learn to Train
Stage Four: Train to Train
Stage Five: Train to Compete
Stage Six: Train to Win
Stage Seven: Active for Life

Stage One: Active Start
Ages: 0 to Six years

The objective of the Active Start stage is to have children learn fundamental movement skills and link them together with play. Physical activity is a natural part of life for young children and should involve fun play.

Cricket does not have a direct role during the Active Start stage other than to support organizations that promote physical activity and physical literacy.

Stage Two: Fundementals
Ages: 6-8 for girls, 6-9 for boys

At the entry level, or Fundamentals stage of LTCD, children are introduced to cricket at school through exposure to the Kids Cricket game, the Teach Cricket & What is Cricket teaching resource, Playground Markings and other grassroots initiatives. During this phase, from approximately three to four years of age, children gain exposure to the game of cricket and acquire a basic understanding of catching, striking and throwing skills. Those who are identified as being genetically predisposed to the game, or who are keen to play will later be introduced to an accredited local club which will provide the opportunity for more focused development. The emphasis during this Fundamentals phase will be on fun and participation. The goal is to develop crucial physical capacities such as agility, balance, co-ordination and speed (ABC'S) alongside basic cricket-specific skills. The children will be encouraged to participate in as many other sports as possible.

Early maturing athletes are undoubtedly better athletes during childhood; however, research strongly suggests that late maturing children may have greater potential to reach elite levels in the long term. They are likely to benefit from spending longer in the important early stages that pattern future physical literacy.

Coaches must encourage a positive perception of the activities and of the children themselves. They should create a non-judgmental and nonthreatening atmosphere where equal praise is given for all forms of effort and no obvious "school-associated" learning is present. It is important that the children's initial exposure to cricket is positive so that they will be encouraged to develop a love for the game. Basic skills that can be built on later for batting, bowling, catching, and throwing are starting to be patterned during this phase.

Batting	Bowling	Fielding	Other	Physical
hitting a variety of balls with different bats to develop hand-eye coordination	bowling to develop a sound bowling action, bowling for accuracy and for distance	catching, stopping and retrieving the ball, throwing	have fun, learn about cricket, safety	agility, balance, coordination

Stage Three: Learn to Train
Ages: 8-11 for girls, 9-12 for boys

As the players grow and develop, they enter the Learn to Train stage. Towards the end of this phase children will likely be playing some formalized hard ball cricket matches through either, district competition, their clubs, their provincial association age group teams, or through school hardball competitions. Coaches should ensure that players aim for a minimum ratio of two practice sessions per game during the season to ensure that skill proficiency is improved. The range of maturation is likely to be wide during this phase. Players should concentrate on building upon competencies learnt during the Fundamentals stage, including motor skill and co-ordination development, with an emphasis on further development of safe and sound batting, bowling, fielding and wicket keeping skills. Whilst players are learning to become better athletes and players all programs should be fun and activity based.

Players are introduced to general physical conditioning and an awareness program to highlight the importance of physical development for future success in cricket.

Coaches need to be positive role models by helping shape the correct values and beliefs. This includes encouraging positive attitudes when children are faced with challenges and helping them to form coping strategies for both winning and losing.

It is important that players and coaches place a positive emphasis on the link between physical conditioning and cricket success. This phase is likely to influence a youngster's future attitude toward training and teach him/her the benefits of fitness in achieving high levels of performance on the cricket field along with a healthier lifestyle.

Batting	Bowling	Fielding	Other	Physical
set up (grip, stance, backswing), where to stand, front foot – drive & defense, back foot – drive & defense, pull shot, cut shot, running between the wickets	basic action (grip, run up delivery, follow through), pace, spin, line & length	catching, high catch, offensive, defensive, long, short, overarm, underarm Wicket Keeping: set up, where to stand, basic glove work	basic rules, nutrition/hydration, rest recovery, sport psychology, etiquette, safety	agility, balance, coordination, flexibility, hand & foot speed

Stage Four: Train to Train
Ages: 11-15 girls and 12 – 16 boys

This is a critical stage of LTCD. Many of the important physical attributes will be developed during this stage. The sensitive periods for training stamina, speed, and strength, occurs within the Training to Train phase (refer to Trainability diagram). The ABC's should be maintained during this phase, and more cricket-specific skills should be introduced. This stage is about "Building the Engine".

The most talented players are likely to be selected to play regional & provincial cricket during this stage. These players will be competing against the best players from other parts of the country at U13 and U15 levels. Towards the end of the phase, they will likely take the important first steps towards playing adult cricket.

It is vital that the players' levels of competition and involvement in other sports are monitored, in order to attain the optimum balance for peak performance. Coaches should aim for a minimum 1:1:1 ratio of play: practice: rest during the season with aspirations towards a 1:2:1 ratio. This will mean effective communication between the different interest groups to ensure that the system remains "player-centered". Matches should not outnumber practices.

It should be remembered that between the ages of twelve and fifteen, the most talented performers may only have thirty to forty "meaningful" games in which to impress selectors from Leagues and private academies. Although match performances will not be the only criteria for selection, they clearly take on greater significance as players move towards the end of this phase. Everyone associated with the players has a responsibility to ensure that the players strike the right balance between play, practice, and rest. This way the players are most likely to experience a peak performance each time they play.

Although players are encouraged to continue playing other sports for variety and cross-training, the emphasis during this phase is firmly on cricket (Table Tennis, Tennis & Field Hockey).

Careful monitoring of the player's growth is critical during this phase using simple height measurements and visual assessment to ensure that the onset of PHV and the sensitive periods of accelerated adaptation to training are identified and that training of the Five S's is introduced at the correct time. Specialization in a position (batting, bowling, wicket keeping) should begin towards the end of this stage.

Batting	Bowling	Fielding	Other	Physical
soft hands, shot decision making, proper footwork, making a decision on guard, running between the wicket decisions, rotating the strike, batting tactics, front foot drive variations, back foot drive variations, plus new shots (leg glance, sweep, hook)	grip variations for deferent types of delivery, spin, pace, swing, ball care, bowling tactics, control of line & length	tactics of field placement, field placement for various forms of the game, choice of returning the ball to correct wicket, backing up Wicket Keeping: develop wicket keeping skills	better understanding of the rules for various variations of the game, making nutrition & hydration choices, taking personal responsibility for training, advanced sport psychology, code of conduct, balancing sport & education, specialization in batting, bowling & wicket keeping	endurance, strength, flexibility, speed (whole body)

Stage Five: Train to Compete
Ages: 15-22+ for girls, 16-23+ for boys

By age sixteen for boys and fifteen for girls, most players will enter the Train to Compete stage. During this stage they will further develop their cricket skills, including technical and tactical work in competitive situations. Coaches should strongly emphasize autonomy and independence, and also create the right environment for the mastery of technique and the development and refinement of psychological skills. Individually tailored physical and mental development programs are an integral part of improving performance in most sports.

Players in this phase will be playing school, club, and/or provincial age group cricket. Prioritization of competition and suitable play: practice: rest ratios must be established. It is important to establish a provincial and national U17 squad to provide adequate competition at the elite level. This will offer more retention of promising athletes at this level.

During this phase important transition points take place. It is essential for coaches to consider appropriate training and practice regimes to ensure that players retain a balanced lifestyle during this important time.

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Batting	Bowling	Fielding	Other	Physical
advanced shot selection, ability to adjust batting skills to type of game and situation, assessing pitch condition, master batting techniques	having a bowling plan, disguising delivery, use of new ball, bouncers (variations), mastering bowling techniques	throwing accuracy, error reduction, master fielding techniques	international travel, getting over jet lag, dealing with flight delays, alcohol & recreational drug use, adapting to various foods, maintaining fitness on the road, relationship issues, sexual relationships, immunization, further develop technical & tactical work in competitive situations, refine psychological skills, have a balanced lifestyle	maximizing – endurance, strength, flexibility speed (whole body), maintaining fitness in a highly competitive schedule, maintenance of body weight

Stage Six: Train to Win
Ages: 22+ for girls, 23+ for boys

Once players reach the Train to Win stage they should have acquired most of the capacities needed to perform at a high level. The focus now is on team dynamics. The maintenance of physical attributes appropriate to the performer's skill requirements and further development of match-specific skills occur during this stage. For top provincial players, the training year will be divided into a double periodization while the international calendar may result in multiple periodization for the national team program. Provincial players will be playing in their regional Provincial tournaments and the National Cricket League while the international calendar will include ICC Intercontinental Cup, World Cricket League, ICC World Cup Qualifications and ICC Americas competitions.

Batting	Bowling	Fielding	Other	Physical
performance under pressure, error reduction, match specific skills	performance under pressure, error reduction, match specific skills	performance under pressure, error reduction, match specific skills	moving to full time professional athletes, making cricket high performance the most important feature, managing end of career decisions and opportunities, dealing with long-term international travel and hotel living	maximizing – endurance, strength, flexibility speed (whole body), maintaining fitness in a highly competitive schedule, maintenance of body weight, Injury treatment and recovery

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Stage Seven: Active for Life
Ages: 22+ for girls, 23+ for boys

Continue to be physically active in cricket or in any other sport. Continue to be involved in the cricket community at different capacities. During this stage, players make the transition from competitive sport to participating in life-long physical activity. Players may enter this stage at any age.

This stage describes the transition from competitive sport to lifelong physical activity. The sport system should encourage participants to move from one sport to another with ease and from one aspect of sport to another.

Active for life may also involve moving from competitive sport to:

- Recreational activities such as running, swimming, hiking, cycling
- Lifelong competitive sport through age group competition such as the Master's Games
- Sport-related careers, such as coaching, officiating, sport administration, small business enterprises, or media
- Volunteer positions as coaches, officials, or administrators

Training and recovery programs should fit the needs of the players for whom they are intended. Masters players need programs that take into account how aging affects strength, flexibility and endurance.

A positive experience in sport is the key to retaining participants after they leave the competitive stream. Entry to this phase can mark a philosophical shift.

Batting	Bowling	Fielding	Other	Physical
injury prevention	injury prevention	injury prevention	making people aware of both playing and non-playing opportunities in cricket, suitable recreational competitions	maintaining flexibility, maintain suitable level of fitness

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LTCD INITIATIVES
(IMPLEMENTATION PLAN)

Cricket Canada recognizes that successful implementation of LTCD is contingent upon changes in the sport at all levels. The impact of these changes will vary from association to association, and will affect factors such as organizational staffing, allocation of existing resources, competition structures, programming, and education for coach and officials.

A successful LTCD will require strong leadership and effective strategies for communication and education. Strong partnerships between Cricket Canada, its provincial members, and national/provincial/territorial stake holders must be developed, and members should be encouraged to foster similar partnerships with their stakeholders.

In developing this model for Canadian cricket, several areas of concern have been identified, along with the recommended initiatives required to address these concerns. These are listed below:

Communication:

- Develop and implement a communication plan to ensure that all stakeholders understand and support LTCD.
- Develop an effective strategy to increase Cricket Canada's visibility and political presence at the federal, provincial and municipal levels of government. Increase recognition by federal, provincial and municipal governments of Cricket Canada's contribution to sport and health in Canada.

Organizations:

- Strengthen Cricket Canada's role in fostering partnerships between organizations and leagues throughout the cricket community with the goal of achieving system alignment.
- Develop models of best practice that are understood by organizations involved in grassroots development.
- Deliver programs and services of value to provincial and associate members.
- Encourage Cricket Canada and PSOs to work towards a greater level of staff support.
- Establish partnerships with professional and international teams.
- Implement a sustainable governance and operations model that supports accountability and enables achievement of strategic goals for Cricket Canada and its provincial associations.
- Elevate the profile, prominence and image of Cricket Canada.
- Increase the value associated with Cricket Canada's marketable properties.

Coaching:

- Review and implement necessary changes in Cricket Canada's NCCP to ensure that the principles and values of LTCD are imbedded in all coaching development programs.
- Increase the number of trained and certified coaches at all levels. Develop mentorship programs.
- Establish a viable National Coaches Association.
- Establish a database of coaches at all levels throughout Canada.

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Player Development:

- Create and develop the Technical Manual (details for each stage of the participants/athlete model) to deliver "Cricket for Life".
- Integrate physical literacy into the appropriate stages of athletic development.
- Review and implement as necessary appropriate playing rule modifications that are compatible with the LTCD Stages of Development.
- Introduce cricket to new players of all ages.
- Develop and implement an LTCD s to meet the specific needs of the Canadian female population.
- Ensure equal opportunity for participation and excellence for female athletes at all levels of participation.
- Develop and implement a national athlete identification system.

Leaders:

- Develop and implement a Long Term Officials Development program (LTOD).
- Integrate officials into competition management.
- Increase the number of officials at all levels of competition.
- Develop a sport science support group to further advance LTCD principles and factors.
- Create more leadership training opportunities in cooperation with the provincial associations.
- Develop and implement an Athletic Trainers' Program for cricket.
- Encourage "retired" cricket players to continue their involvement in the sport as coaches, officials, administrators, and in player support roles.

Competition:

- Align competition structures with Player Development Program.
- Undertake a thorough review of the sports competition structure that favors athlete/participant development, including age appropriate rule modifications.
- Develop and implement a sustainable program of national championships that will ensure an appropriate excellence pathway for developing athletes.
- Develop an appropriate National Team program and structure that will produce world-class results in ICC competitions.
- Optimize player choices so they can pursue the most appropriate playing opportunities for themselves in Provincial, National and International competitions.

Facilities:

- Improve quantity and access to appropriate practice and competition facilities.
- Ensure that facilities are of a standard that is conducive to proper training.

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COMPETITION GUIDELINES

Providing definitive guidelines on levels of competition for cricket is difficult. Every player's situation and circumstances differ. However, it is true to say that over-competing for the most talented young players is a problem. Overplaying when combined with insufficient fitness levels, poor footwear, physiological imbalances and poor technique will inevitably lead to a higher risk of injury. It can also lead to early burn-out and exit from the sport. If a sports system is to be truly "player centered" then this weakness in our system needs to be addressed.

The Cricket Canada future competition review will provide guidelines on appropriate play: practice: rest ratios. The guidelines are clearly of primary importance to the most talented players who are in greatest demand but will also benefit the less able player. This sensitive issue will require agreement, co-operation and consensus on calendar planning from different coaches, parents, players and others involved in a talented player's development. It would seem appropriate to make this decision the responsibility of the national association in consultation with provincial/territorial organizations.

An unbalanced competition calendar and unbalanced play to practice ratio will interfere with practice and training opportunities, which in turn will affect player skill and ability levels in later years.

THE "WINNING MIND"

(ADOPTED FROM ECB LTAD MODEL)

In May 2002 the ECB's consultant sport psychologist and chairman of the ECB Science & Medicine Advisory Group, Dr. Steve Bull, and his team of ECB sports psychologists produced a research project for the ECB entitled "Developing a Winning Mind in Young English Cricketers". The research was funded by Sport England as part of the ECB World Class Performance Program.

The primary purpose of the study was "…to investigate the determining factors associated with a winning mind in English cricket and hence create a framework for understanding how winning mind attributes can be developed in our young cricketers."

One hundred and one current cricket coaches were asked to list the ten English cricketers of the past two decades who they considered to be the mentally toughest. The top fifteen were then interviewed and the team translated the data collected into a "conceptual model" to illustrate the findings.

The relevance of these findings to coaches and support staff implementing LTAD is the importance attached to developing the optimal environment for players to practice and play during their growth and development years. That optimal environment will in turn help develop a player's character (incorporating their beliefs and values upon which behaviour is based).

The research found that within the environment there are certain things that are likely to maximize the chance for a "winning mind" attitude.

The following table relates the attitude factors to the contributory environmental factors and implications for the coach:and training opportunities, which in turn will affect player skill and ability levels in later years.

Attitude Implications	Environment	Coach
"Never say die" mindset	Practical sessions that promote completion of a challenge – fitness tests, overload sessions	Clear and repeated message outlining this attitude during lifestyle, training and match performances.
"Go the extra mile" mindset	Practice sessions or activities where players are required to invest extra time & effort to improve their own skills	Recognition through charts, rewards etc. Encourage players to set their own criteria for measuring this. Use of role models from other sports as well as from cricket – mentoring as to how players can transfer this attitude to their own situations.

Attitude Implications	Environment	Coach
"Thrive on competition – with self and others" mindset	Practical sessions that promote completion of a challenge – fitness tests, overload sessions	Present competition so that players learn to define it as a way of assessing how well they've prepared and what has been learnt for next time. Enlist sports psychologist to advise on identity, challenge and support values & perceptions. Help players find the best way of thriving on competition.
"Belief in making the difference" mindset	Practice sessions or activities where the roles and contributions of players are clearly signaled and encouraged to be understood	Constant communication on a one-to-one and team basis to clarify and reinforce the roles and strengths of individual players. Encourage to be "informed" what others do to add to player's own qualities as opposed to changing self into another's image.
"Exploit learning opportunities" mindset	Use practical challenges – including guaranteed failure and guaranteed win outcomes to train players to review performance with a learning brief	Encourage "How would we do better next time or how would we repeat?" conversations. Every situation can be learned from – encourage players to identify what they want to learn about themselves, their performance and their sport. Use of effective questioning.
"Willing to take risks" mindset	Use of practical challenges and activities which encourage players to calculate risks and assess course of action	Ensure player is aware of what risk is! What is a risk worth taking & what is reckless!
"Belief in quality preparation" mindset	Set up a quality preparation environment in terms of instilling correct attitudes prior to practice and setting out non-negotiable i.e. encourage buy in from players as to what quality preparation means	Discuss/define club and individual standards. Encourage players to set out own training goals and performance indicators during preparation. Define "preparedness" and what it feels like.
"Determination to make the most of ability" mindset		Use motivational imagery. "Where does the player want to get to?" – how do you want to be remembered sessions.
"Self-set challenging targets" mindset		Constant coach support allowing time to set goals. Constant feedback and support especially on the process for achieving targets – help players to learn how good they are at this and how to get better at it.

It is not possible or advisable to put time limit on when these attitudes should be incorporated into LTCD. There are dangers to such an approach as much will depend upon individual psychological stages of growth and development. However, the research can help inform our thoughts on what constitutes a talented player and it will be at the coaches' discretion as to when and to whom the "mental toughness" message is appropriate However, coaches will benefit from understanding the psychological attributes that are beneficial for successful athletic performance and designing their programs with them in mind.

THE ROLE OF CRICKET CANADA AND OTHER SPORTING BODIES

In its role as National Governing Body for cricket, Cricket Canada would take on the implementation of many of the structural and framework changes required. Policy decided at a national level would then be delivered locally and in line with local needs.

In regard to LTCD, specific roles and responsibilities of Cricket Canada would include the following:

- Ensuring that any relevant current and future programs and initiatives affecting the athlete's development are consistent with the aims of the Long-Term Athlete Development sports system for cricket.
- The development Department and the Coaching Coordinator will oversee the design and delivery of any changes and amendments needed to the current system of teacher training, the coaching education system and coach development.
- Ensuring that existing ethics, equity, child welfare, facilities, disabilities, volunteer, and other strategies are aligned and integrated into the new system.
- Ensuring that competition rules and guidelines are designed to be consistent with LTCD principles.
- Ensuring that appropriate funding levels support the LTCD sports system and are targeted towards the young athlete's growth and development key stages at school, club, district/league, and provincial level.

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- The Development Department and High Performance Program will formulate effective detection, identification, selection and development criteria for talent identification for use by schools, clubs, districts/leagues, provincial associations and national squads using the minimum quality standards. This would include a system of objective measurement to monitor competencies achieved.
- Ensuring that new initiatives and programs introduced by outside bodies and agencies are introduced appropriately and are consistent with the LTCD sports system.
- Formulating and overseeing an effective monitoring system to evaluate the LTCD process.

Provincial Associations would be responsible for the local delivery of the LTCD sports system. Their roles and responsibilities would include the following:

- Choosing a dedicated Performance Officer, to work alongside the Cricket Canada Development Manager, who is responsible for the long-term development of players between the ages of six and fifteen? The Performance Officer would set policy, plan programs, and liaise with other key personnel (including Academy Director, clubs, schools, parents, DO & Cricket Canada High Performance & Development Departments).
- Responsibility for implementing a nationally consistent Fundamentals program for players in the 6-9 year old age group.
- Responsibility for delivering an effective district/league and provincial program with appropriate levels of practice, training and competition as set down by the Cricket Canada.
- Responsibility for mentoring, planning and developing the program for the most talented athletes whose chosen sport is cricket.
- To ensure that adequate funding is targeted within Development Plans to develop athletes in the six to fifteen year old age group.. The Minimum Quality Standards will provide guidance as to which areas of development should be prioritized.
- To ensure that a robust system of detecting new talent from primary school visits is in place and that those detected are introduced to appropriate local accredited clubs for focused ongoing development using club/school groups.

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COACH EDUCATION AND DEVELOPMENT

The role of the coach will be central to any successful introduction of a new sports system. The coach has the ability to motivate performers and either unlock and nurture or stifle future potential. Any changes to the existing system will roll out over a number of years and LTCD will progress in parallel to changes to the Coach Education and Development system as and when the opportunity arises. The role and responsibility of the Cricket Canada Coach Education Department and the Cricket Canada Development Department with regard to LTCD are as follows:

- To amend the existing coach and teacher education courses including teacher training and Levels 1-3.
- To amend the Cricket Canada Coaching Manual.
- To promote and develop an awareness program for the introduction of LTCD principles.
- To design and deliver Coach Development Workshops on LTCD with special emphasis on the delivery of the Fundamentals, Learning to Train and Train to Train stages.
- To monitor progress, evaluate success and review these periodically.
- To update existing coaches with regard to the principles of delivering the LTCD sports system for cricket.
- To develop and deliver further training and development packages to support the LTCD system.
- In co-operation with Canada Coaching Association, to develop a compulsory Movement Skills for Cricket Workshop for all pre-Level I coaches in support of the LTCD system.
- To develop an effective coach mentoring scheme.

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CLUBS AND CLUB DEVELOPMENT

Clubs/academies will play an important part in delivering any new system. It is proposed that the roles and responsibilities are as follows:

- Chosen clubs/academies, affiliated to a national accredited association, are to be initially used as the "pilot" in the development process. In conjunction with Territorial/Provincial Boards they will be responsible for delivering the Fundamentals, Learn to Train and Train to Train phases of LTCD (from ages 6-16). As the system rolls out, it is envisaged that additional clubs/academies will be added to deliver the system.
- As an increase in number of hours activity for the talented cricketer is expected, it is proposed that the clubs/academies take up some of the "slack" and provide additional local venue (alongside Territorial/Provincial Boards) at which players can practice and training under expert tuition.
- As part of the program, to receive benefits, resources and finances such clubs/academies can seek sponsorship and/or charge fees to hire sufficient appropriately qualified coaches and volunteers to deliver the program.
- To support a close working relationship with local schools and their Territorial/ Provincial Board to ensure effective delivery of the system.
- To provide appropriate outdoor practice facilities for club development and to be available to Territorial/Provincial Board squads as part of a summer practice program if the opportunity arises.
- Club/academies coaches to be given access to LTCD training and support programs offered by local Provincial Associations and the Cricket Canada Coach Education Department.
- Accredited clubs to display "Pathway to Success" posters outlining what Cricket Canada can do for the player and also their route map from "Playground to the International Arena".

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LONG-TERM ATHLETE DEVELOPMENT PLAN FOR WOMEN'S CRICKET IN CANADA

In Canada, women's cricket is at a critical stage of development. The national team has been performing well, but grassroots development is lacking. This has made recruitment and retention of female athletes challenging. In order to grow the game and maintain momentum for our national side, it is crucial that women's cricket be promoted and supported in a manner that will bring new players to the game and enable elite female cricketers to perform and compete on the world stage.

Objectives of the Long Term Cricket Development Plan

- To improve the way women's cricket is organized and supported by promoting collaboration amongst all levels of cricket organizations, from Cricket Canada to local clubs and players.
- To ensure the National Team remains competitive and qualifies for the World Cup in 2013.
- To implement a leadership program to identify and train current and future leaders, coaches, players, administrators, and officials who will develop women's cricket in Canada.

Current Status of Women's Cricket in Canada

- There are low numbers of women playing cricket in Canada (estimated at around 140). Limited opportunities for women to play organized cricket in Canada. A lack of awareness of existing opportunities to play cricket, and the relative "newness" of the elite program of the national team all contribute to the low level of participation by women.
- The only organized cricket programs for women at present are found in Victoria, Edmonton, Calgary, and Toronto. There is no club or provincial competitions for women to play in with or against other women.
- There is extremely little promotion of cricket in general, and women's cricket in particular, in traditional and non-traditional cricketing communities.
- There is no feeder system in place to enroll girls at a young age from school or youth groups and provide them with proper training and encouragement.
- At the elite level, the National Team is expected to maintain its success in international competition with little infrastructure or access to high performance training methods. With the increasing competition at the international level in the Americas, Canadian players will shortly be unable to keep up and compete at an elite level, given the current training infrastructure.
- The inadequate training infrastructure, coupled with the limited opportunities for women to play cricket in Canada, lead to many difficulties in recruiting and retaining players who have the skills to compete at an international level.

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Requirements for the Future Success of Women's Cricket in Canada

- Establish a national vision to create a welcoming and challenging environment for female cricketers of all ages and abilities throughout Canada.
- Promotion of cricket in general, along with women's cricket on its own, in Canadian and sport culture. This can only be achieved through communications that integrate coordinators and coaches at all levels (national, provincial, club).
- Increase the quantity and quality of coaches, administrators, and officials in Canada to provide a good technical skill basis for all levels of female cricketers. Ensure that coaching methods incorporate female learning models.
- Increase the number and variety of opportunities for women to play cricket with and against other women in Canada.
- Provide sufficient financial and human resources to support women's cricket at the national level. The successes of the National Team can be leveraged to promote interest in women's cricket in Canada.
- Establish a women's athlete representative on the Cricket Canada board to help promote timely and transparent communication between cricketers and administrators. Build upon existing women's cricket programs in Victoria and Toronto. Use the expertise in these successful women's programs to help establish programs in provinces and cities that do not currently have organized women's programs.
- Ensure that the ongoing improvements to the Cricket Canada website increase the visibility of women's cricket in Canada by including photos, information on how beginners and experienced cricketers can become involved and the opportunities available to them.

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SUMMARY

Cricket is a major sport worldwide and Canada has the potential to become a prominent contender at the international level. In order to achieve this status, it must overcome several shortcomings that currently exist and make specific changes to increase its participation base, promote talent identification and implement a model that results in sport system alignment and integration.

The Long Term Cricket Development Model provides the vehicle for this transformation, and offers a means for Cricket Canada to achieve its goals. The implementation of this model will be instrumental in unlocking the potential for Canadian cricket to achieve its potential on the international stage and for increased visibility and participation in the sport of cricket in Canada. LTCD provides an overarching framework and a logical participant developmental pathway to remedy the shortcomings in the current system of athlete preparation. More specifically, the LTCD model involves a paradigm shift in the sport of Cricket in Canada;

- is a philosophy and a tool for change in the delivery system for Cricket.
- identifies shortcomings in the Cricket Canada delivery system and provides guidelines for problem solving.
- provides sport system alignment and integration between physical education, school sports, sport and recreational physical activities, and high performance sport.
- is participant-centred from a child's first involvement in sport and physical activity to the transition to lifelong physical activity or other sport related activities.
- provides a framework for reviewing current practices, developing new initiatives, and standardizing programs.
- establishes a clear development pathway from playground to podium and on to being active for life.
- provides guidelines for planning for optimal performance for all stages of participant development.
- provides key partners with a coordinated structure and plan for change.
- identifies and engages key stakeholders in delivering change.

Developing Physical Literacy is one of the cornerstones of the LTCD Model. This involves understanding key concepts that influence training as players move from childhood to maturity and the interplay between physical, cognitive and emotional development. All stakeholders should have a good grasp of physical literacy and be familiar with:

- the five stages of training.
- markers for developmental age (onset of PHV, sensitive periods), identification of these, and their implications for training.
- the ten S's, periodization, and the alignment of the competitive calendar with athletic development. Recognition for the dynamic nature of the LTCD model is also important. This requires ongoing monitoring and adjustment of training at all levels in response to new knowledge, research, and sport-specific developments.

The establishment of effective communication channels between stakeholders (participant, instructors, coaches, educators, administrators, sponsors, spectators, officials and national/ multinational organizations) is essential. This communication must be based on a set of principles consistent with the LTCD model.

Women's cricket in Canada will benefit from the recommendations above but additional steps must be taken to improve its participation levels, visibility, and performance across Canada.

These include promotion of women's cricket across Canada by:

- increasing the number and variety of opportunities for women to play cricket in Canada.
- providing a welcoming and challenging environment for female cricket players of all ages and abilities.
- increasing the visibility of women's cricket by integrating coordinators and coaches at all levels.
- increasing the quality and quantity to female cricket coaches, officials and administrators.
- implementing coaching techniques that address aspects of training specific to females.
- increase financial support and human resources to support women's cricket at the national level.

LTCD will encourage greater participation by Canadians in the sport of cricket, and will provide them with the training and opportunities to pursue their highest competitive potential or simply to remain active for life.

Implementation of the LCAD model requires a paradigm shift for all stakeholders and will require effective cooperation and communication for all involved. However, the LTCD model will enable the sport of cricket in Canada to flourish. The adoption of this model by Cricket Canada represents an exciting opportunity for Canadian cricket to attain its potential for increased participation and elite performance, both domestically and internationally.

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APPENDIX ONE

PHYSICAL, MENTAL / COGNITIVE AND EMOTIONAL DEVELOPMENT

(ADAPTED FROM CANADIAN SPORT FOR LIFE RESOURCE PAPER)

Fundamental Stage: Physical development Characteristics and implications

Basic characteristics

- Larger muscle groups are more developed than smaller ones.
- The size of the heart is increasing in relation to the rest of the body. The cardiovascular system is still developing.
- Ligaments are becoming stronger, but the ends of the bones are still cartilaginous and continue to ossify.
- Basic motor patterns become more refined towards the end of this phase and the balance mechanism in the inner ear is gradually maturing.
- During this phase, girls develop co-ordination skills faster than boys but the developmental differences between boys and girls are negligible.

Performance capabilities & limitations

- Children are more skillful in gross movements involving large muscle groups than in precisely coordinated movements involving the interaction of many smaller muscles.
- Endurance capacity of the young players is more than adequate for most activities.
- The young person's body is very susceptible to injury through excessive stress or heavy pressure.
- There is a great improvement in agility, balance, co-ordination and speed (abc's) towards the end of this phase.
- Sex differences are not of any great consequence at this stage in development.

Implications for the cricket coach

- Basic skills should be developed during this phase.
- Short duration anaerobic alactic activities should be planned (short, sharp sprint activities 4-6 sec with 2 minutes rest in between).
- Use slow progressions in hopping and bounding. Strength training limited only to own body weight or appropriate medicine ball (neural recruitment i.e. nervous system adaptation).
- Cricket-specific activities and games should emphasize co-ordination and kinesthetic sense. Activities which incorporate gymnastic or athletics type movements are most appropriate.
- Training and playing in combination should be emphasized at these ages and during this phase.

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Mental/cognitive development Characteristics and implications

Basic characteristics

- Attention span is short and children are action orientated. Memory is developing progressively.
- Children in this phase have limited reasoning ability. Later on during the phase there is growing capacity for more abstract thought.
- The repetition of activities is greatly enjoyed. Young players improve their abilities through experience.
- Imagination is blossoming.

Performance capabilities & limitations

- Young players cannot sit and listen for long periods of time.
- Children are generally leader-oriented: they love to be led!
- Young players do not learn the skills correctly by trial and error.
- Experimentation and creativity should be encouraged.

Implications for the cricket coach

- Use short, clear and simple instructions. Children want to move and participate. Coaches with excellent communication skills must work at this level.
- Coaches should adopt a "follow me" or "follow your leader" approach and ensure that all activities are fun and well-planned. For example, take a warm up and encourage children to follow you tumble, forward roll, touch the floor/walls etc.
- Coaches must be able to provide a correct demonstration of basic cricket skills at this level. Those coaches with excellent technical modeling must work at this level.
- While playing and practicing encourage input (opinion) from the children. They will love to try things out! Create a non-judgmental environment.

Emotional development Characteristics and implications

Basic characteristics

- The children's self-concept is developing through experience and comments from others.
- Children like to be the centre of focus and attention.
- The influence of peers becomes a very strong driving force behind all activities.
- The child begins to understand the needs for rules and structure.

Performance capabilities & limitations

- Children perceive these experiences as a form of self-evaluation: "I am a good person if I do well; I'm a bad person if I do poorly."
- When a situation becomes threatening they quickly lose confidence.
- Acceptance into a peer group often depends upon one's abilities in physical skills and activities.
- Children can understand and play simple games with simple rules and will tend to question rules and expect thoughtful answers.

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Implications for the cricket coach

- Children need positive aperception of themselves and need positive reinforcement on a regular basis. This will provide the motivation to continue with the activity.
- Plan and structure technical and tactical activities so that success is virtually guaranteed. This means progressing from simple to more complex activities.
- Coaches must be capable of assessing the basic skills and of providing a varied program of practical opportunities for technical and tactical development and improvement.
- Children need equal praise for all forms of effort. Participation and fun to be emphasized over winning. Focus is on the process, not on the outcome!

Learning to Train/Training to Train: Physical development Characteristics and implications

Basic characteristics

- Significant proportional changes occur in bone, muscle and fat tissue.
- Girls begin their growth spurt between ages 12.5 and 14 years, boys between 12.5 and 15 years. Girls attain a maximum rate of growth at average age 11, boys at average age 14.
- Smaller muscle groups are becoming more developed.
- During this phase the various parts of the body do not grow at the same rate. The growth rate of the legs and arms will each peak prior to that of the trunk.
- A significant increase in red blood cells occurs, especially in boys due to the male hormone testosterone.
- The central nervous system is almost fully developed.

Performance capabilities & limitations

- During growth spurts adaptation is influenced by sudden changes of body proportions.
- Early in this phase, girls are faster and stronger than boys are. This situation is reversed later on in the phase.
- Speed, agility and co-ordination are still improving rapidly during this phase.
- A change in the centre of gravity, length of limbs and core strength will determine the content of training.
- The oxygen transportation system is still developing and aerobic endurance is continuing to increase.
- Agility, balance and co-ordination are fully trainable.

Implications for the cricket coach

- Monitor training carefully and individualize the content of training to ensure adaptation.
- Chronological age might not be the most appropriate way to group players.
- Situations when fear, guilt or anxiety brought about by sexual development should be avoided.
- With the improvement of fine motor skill movement all basic technical skills to be mastered. Players should learn how to train including physical, technical, tactical and ancillary capacities (e.g. Warm up, cool down, diet, nutrition, hydration etc.).
- Some of the already learned skills might need to be relearned again due to growth of limbs which might affect technique. The increase in body mass requires more structured aerobic training. Only short duration of anaerobic activities are recommended.

Mental/cognitive development Characteristics and implications

Basic characteristics

- Abstract thinking becomes more firmly established.
- Young players develop a new form of egocentric thought. Much emphasis is placed on self-identity.
- Young players are eager to perfect their skills.

Performance capabilities & limitations

- Decision making through more complex technical training/practice should be introduced.
- This may result in a strong fear of failure.
- Individual specific direction and structure in the learning process is required. A variety of methods to measure success are important to maintain motivation.

Implications for the cricket coach

- Decision -making on tactical solutions should be based upon the skill level of the player.
- Create the optimum learning environment, match skill and drill levels. Focus on mastery.
- Introduce simple coping strategies for winning and losing, positive reaction to challenges.
- Provide a strong role model by modeling "winning mind" values and belief.
- Positive reinforcement is imperative. The difference between the physical and mental development can vary greatly and care must be taken not to pick the early developers and neglect or deselect the late-developers. The coach's ability to demonstrate specific skills is important.

Emotional development Characteristics and implications

Basic characteristics

- There is a tremendous influence on behavior from peer groups.
- During this phase players are capable of co-operating and accepting some responsibility.
- Tension generally exists between adults and adolescents.
- It is important at this developmental level that young players are able to display tenderness, admiration and appreciation.
- Physical, mental and emotional maturity does not necessarily develop at the same rate.
- There is a desire to have friends of the opposite sex.

Performance capabilities & limitations

- Values and attitudes are being created and reinforced by the group.
- Some players may be less responsible mainly due to a fear of failure.
- Communication channels should be kept open by adults as all teenagers need help even though they do not recognize the need or seem grateful for the help.
- Deprivation of these qualities often leads to exaggerated and/or unacceptable behaviour.
- Feelings of confusion or anxiety may exist as a result.
- Social activities are important events for this age group.

Implications for the cricket coach

- The coach should exercise strong direction and supervision. A role model for young players at this phase is very important.
- Coach must have open communication with players.
- Coach is usually better accepted than other adults and should always attempt to foster two-way communication. Coaches should create environment for opportunities to make decisions, decide on methods, make judgments and make mistakes.
- Early maturers often become leaders and excel in performance. Coaches must not create "in and out" groups as this can have negative effects on other player's development.

Training to Compete: Physical development Characteristics and implications

Basic characteristics

- The circulatory and respiratory systems reach maturity.
- Increases in height and weight gradually slow down, and stabilization in the muscular system occurs.
- Skeletal maturation continues in males and females.
- By age 17, girls generally have reached adult proportions, whereas boys do not generally reach such proportions until several years later.

Performance capabilities & limitations

- These systems are generally capable of giving maximum output.
- Muscles have grown to their mature size but muscular strength continues to increase reaching its peak in the late twenties.
- Connective tissues are still strengthening.
- Proportionally, girls gain more weight than boys during this phase.

Implications for the cricket coach

- Aerobic and anaerobic systems can be trained for maximum output. Full cricket-specific energy system training should be implemented.
- Strength training can be maximized to improve overall strength development. Neuromuscular training should be optimized during this phase.
- Progressive overloading in training should be continued.
- Aerobic training for girls to be optimized. Coaches should be aware how to deal with weight gain and effect on figure.
- Players should learn how to compete including all technical, tactical and ancillary components.

Mental/cognitive development Characteristics and implications

Basic characteristics

- Generally, by age 16, the brain has reached its adult size but continues to mature neurologically for several more years.
- Critical thinking is well developed during this phase.

Performance capabilities & limitations

- Players can cope with multiple strategies and tactics, particularly near the end of the phase.
- The capacity of self-analysis and correction is developing.

Implications for the cricket coach

- Coaches should ensure the refinement of all technical and tactical skills.
- Decision making should be developed further through technical and tactical development.
- Coaches to promote autonomy and independence.
- Coaches to create environment where players are encouraged to make decisions, decide on methods and make judgments.
- A structured environment in order to maintain a strong mastery competitive value base.

Emotional development Characteristics and implications

Basic characteristics

- Peer group influence is still a powerful force.
- Players are searching for a stable, balanced self-image.
- Activities and interaction with the opposite sex are important during this phase.

Performance capabilities & limitations

- Independent decision making and leadership skills are becoming more developed.
- Self-concept is still very much influenced by success and failure. Coping techniques are useful.

Implications for the cricket coach

- Players should be given the opportunity to develop through participation in appropriate leadership or responsible role (i.e. Captaincy) but strong direction and discipline must be maintained.
- Positive evaluation of performances and positive reinforcement are imperative.

Training to Win Physical development Characteristics and implications

Basic characteristics

- Physiologically the body reaches maturity during this phase.
- Final skeletal maturation occurs at age 19-20 for females and approximately 3 years later for males.
- Performance capabilities and limitations.
- All physiological systems are fully trainable.

Implications for the cricket coach

- Coaches should use the most advanced physical training techniques and programs to ensure maximum adaptation and to minimize injuries.
- Coaches should insure that all muscle groups and body alignments are well balanced and complemented by optimum flexibility ranges.
- State of the art testing and monitoring programs to be used.
- Overtraining and overstress should be carefully monitored.
- Regular appropriate medical monitoring should be conducted, with additional blood tests for female players to prevent iron deficiency.

Mental/cognitive development Characteristics and implications

Basic characteristics

- Neurologically the brain matures about 19-20 years of age.
- There is a complete understanding and acceptance of the need for rules, regulations and structure.

Performance capabilities & limitations

- Players are capable of self-analyzing and correcting and refining skills. Players can analyze and conceptualize all facets of cricket.
- Well-developed information processing skills improve the player's ability to visualize verbal instructions.
- The young player must perceive the rules and structure as being clearly defined and fair.

Implications for the cricket coach

- Coaches should use the most advanced physical training techniques and programs to ensure maximum adaptation and to minimize injuries.
- Coaches should insure that all muscle groups and body alignments are well balanced and complemented by optimum flexibility ranges.
- State of the art testing and monitoring programs to be used.
- Overtraining and overstress should be carefully monitored.
- Regular appropriate medical monitoring should be conducted, with additional blood tests for female players to prevent iron deficiency.

Emotional development Characteristics and implications

Basic characteristics

- There is a need to be self-directed and independent.
- Self-actualization and self-expression are important.
- Major decisions on career, lifestyle and education are important at some point in this phase.
- Interactions with the opposite sex continue to be a strong priority with lasting relationships developing.

Performance capabilities & limitations

- The players are ready to assume responsibility and accept the consequences of their actions.
- Major changes in interests, hobbies and physical activities occur during this phase.

Implications for the cricket coach

- Goal setting should be strongly emphasized to give definite direction and purpose to the player's overall program.
- The players need to be treated as adults with respect though direction and structure from the coach is still important.
- Professional guidance should be made available considering off-season and educational pursuits.
- Players must have ample opportunities for independent social interaction.

CRICKET CANADA

APPENDIX TWO

SKILL MATRIX

FUNdamentals 6-8 Girls 6-9 Boys	Learn to Train 8-11 Girls 9-12 Boys	Train to Train 11-15 Girls 12-16 Boys
BATTING: hitting a variety of balls with different bats to develop hand-eye coordination BOWLING: bowling to develop a sound bowling action, bowling for accuracy and for distance FIELDING: catching, stopping and retrieving the ball, throwing OTHER: have fun, learn about cricket, safety PHYSICAL: agility, balance, coordination IMPLEMENTERS: Cricket Canada Kids Program, elementary schools, community groups	BATTING: set up (grip, stance, backswing), where to stand, front foot – drive & defense, back foot – drive & defense, pull shot, cut shot, running between the wickets BOWLING: basic action (grip, run up delivery, follow through), pace, spin, line & length FIELDING: catching, high catch, offensive, defensive, long, short, overarm, underarm Wicket Keeping: set up, where to stand, basic glove work OTHER: basic rules, nutrition/ hydration, rest recovery, sport psychology, etiquette, safety PHYSICAL: agility, balance, coordination, flexibility, hand & foot speed IMPLEMENTERS: middle schools, clubs, academies, leagues	BATTING: soft hands, shot decision making, proper footwork, making a decision on guard, running between the wicket decisions, rotating the strike, batting tactics, front foot drive variations, back foot drive variations, plus new shots BOWLING: grip variations for deferent types of delivery, spin, pace, swing, ball care, bowling tactics, control of line & length FIELDING: tactics of field placement, field placement for various forms of the game, choice of returning the ball to correct wicket, backing up Wicket Keeping: develop wicket keeping skills OTHER: better understanding of the rules for various variations of the game, making nutrition & hydration choices, taking personal responsibility for training, advanced sport psychology, code of conduct, balancing sport & education, specialization in batting, bowling & wicket keeping PHYSICAL: endurance, strength, flexibility, speed (whole body) IMPLEMENTERS: middle schools, clubs, academies, leagues

CRICKET CANADA

Train to Compete 15-22+ Females 16-23+ Males	Train to Win 22+ Females 23+ Males	Active for Life Any Age
BATTING: advanced shot selection, ability to adjust batting skills to type of game and situation, assessing pitch condition, master batting techniques BOWLING: having a bowling plan, disguising delivery, use of new ball, bouncers (variations), mastering bowling techniques FIELDING: throwing accuracy, error reduction, master fielding techniques OTHER: international travel, getting over jet lag, dealing with flight delays, alcohol & recreational drug use, adapting to various foods, maintaining fitness on the road, relationship issues, sexual relationships, immunization, further develop technical & tactical work in competitive situations, refine psychological skills, have a balanced lifestyle PHYSICAL: maximizing – endurance, strength, flexibility speed (whole body), maintaining fitness in a highly competitive schedule, maintenance of body weight IMPLEMENTERS: high schools, clubs, academies, leagues, National Cricket League, National team	BATTING: performance under pressure, error reduction, match specific skills BOWLING: performance under pressure, error reduction, match specific skills FIELDING: performance under pressure, error reduction, match specific skills OTHER: moving to full time professional athletes, making cricket high performance the most important feature, managing end of career decisions and opportunities, dealing with long-term international travel and hotel living PHYSICAL: maximizing – endurance, strength, flexibility speed (whole body), maintaining fitness in a highly competitive schedule, maintenance of body weight, Injury treatment and recovery IMPLEMENTERS: National Cricket League, National team	BATTING: injury prevention BOWLING: injury prevention FIELDING: injury prevention OTHER: making people aware of both playing and non-playing opportunities in cricket, suitable recreational competitions PHYSICAL: maintaining flexibility, maintain suitable level of fitness IMPLEMENTERS: clubs

CRICKET CANADA

CANADIAN MEN'S NATIONAL TEAM

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LONG-TERM ATHLETE DEVELOPMENT