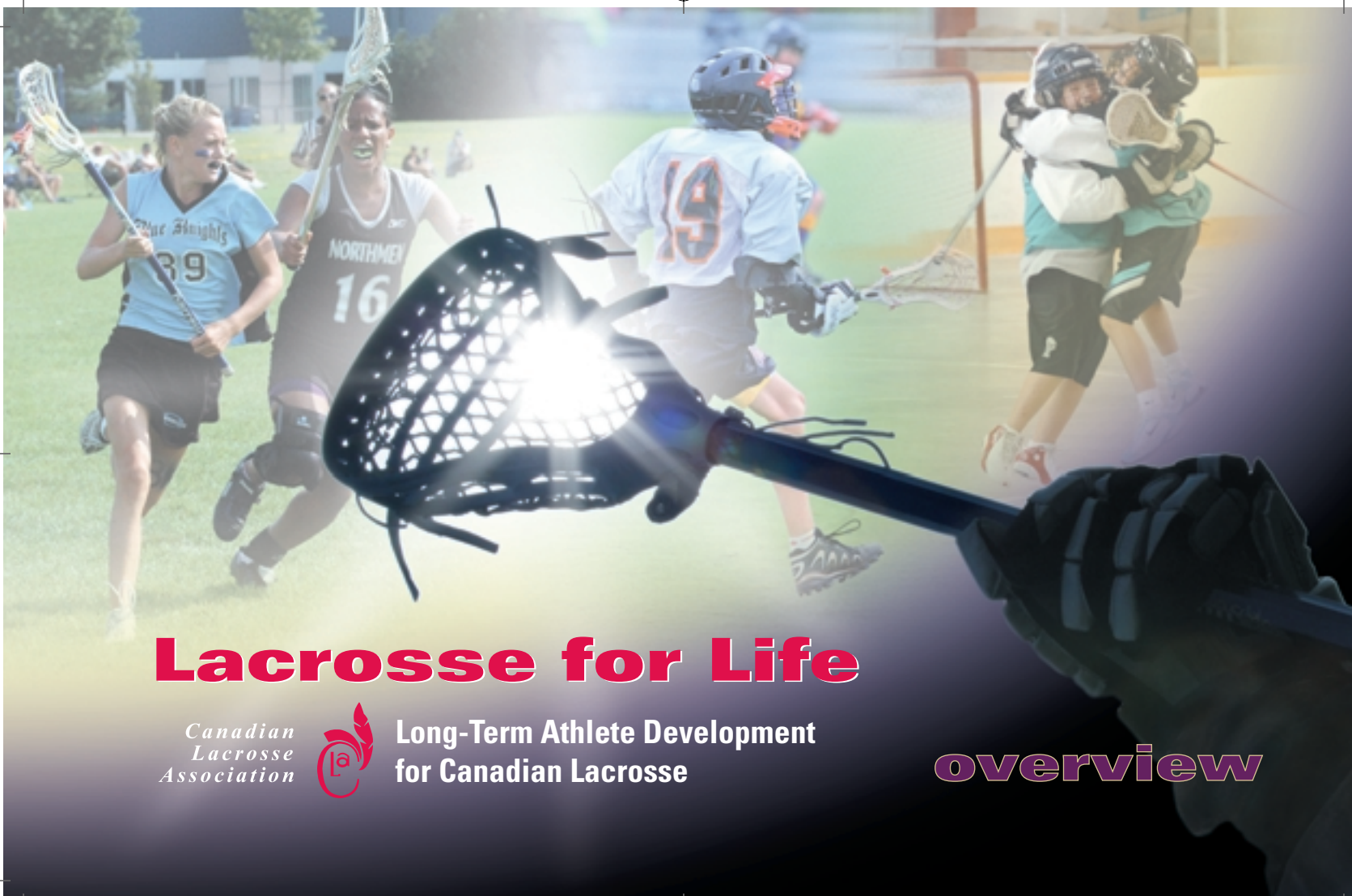




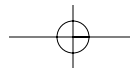
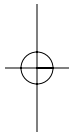
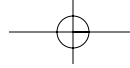
# Lacrosse for Life

Canadian  
Lacrosse  
Association



Long-Term Athlete Development  
for Canadian Lacrosse

overview



***"We believe that in Lacrosse and Hockey, our two National Games, we have the best moral, physical and mental developers of any games known to the athletic world."***

A.E.H. Coe, President, Canadian Amateur Lacrosse Association (April 12, 1926)

### **The Essence of Humanity**

Among the Aboriginal Peoples of North America there is a philosophy of human nature, which holds that humanity is defined by three facets: mind, body, and spirit. Success in the life experience is achieved through the proper conditioning of physical, mental and spiritual aspects of the individual. The mind must be developed to be active and flexible. The body must be developed to be strong and agile. The spirit must be developed through a strong moral code that guides our actions. It is our responsibility to ensure that our children develop as humans by giving them the opportunity and the encouragement to develop each of these facets. As humans ourselves, we must continue to visit and develop these aspects throughout our lives.

Sport has the distinctive character of being able to address all three of these facets - mind, body and spirit - through one activity.

### **The Body**

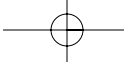
Children develop body awareness and learn to push and extend their capabilities to new heights through their involvement in physical activities. Physical development does not always have to be measured against an absolute standard, but may be measured against personal standards. In this way success, achievement and development are attainable for all.

### **The Mind**

As the participants progress through the learning stages of sport, their abilities to understand, evaluate and make judgments on skills, techniques and strategies also develop. We help the athletes to develop their cognitive abilities from stages of remote understanding through comprehension, instinctive execution, and into innovation.

**Lacrosse for Life**

LONG-TERM ATHLETE DEVELOPMENT FOR CANADIAN LACROSSE



## **The Spirit**

Sport is a tremendous tool by which we can transmit on many levels the guidance to develop a strong moral code. This teaching must occur on a conscious level and not be assumed to be a fundamental part of participation. Through sport we

can transmit the values of fair and honest competition, and respect for rules and authority. We can also help participants develop a guideline for social interaction that they will carry into all other aspects of their lives.

## **A GIFT FROM CANADA'S FIRST NATIONS**

One of the greatest contributions of our First Nations in Canada is that of the game of Lacrosse. Its origin lost in the antiquity of myth, Lacrosse remains a notable contribution of the First Nation culture to modern Canadian society. Lacrosse was characterized by a deeply spiritual involvement, and those who took part did so with dedicated spirit and with the highest ideals of bringing glory to themselves and their tribes.

Originally, Lacrosse, when played only by First Nations, had a spiritual significance in their way of life. Lacrosse was a game to be played for their Creator, for First Nations people to show their gratitude to the Great Spirit for living a full life, and one

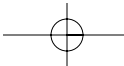
that allowed them to live in harmony with nature and at peace with themselves. Lacrosse was also played for honoured members within the Nation, and a game would be played to acknowledge to the Great Spirit that they were grateful that an elder or medicine person with great knowledge of many things existed in their midst.

Today, Lacrosse has evolved from a spiritual game of our First Nations to the exciting, thriving sport played in every province in Canada. Lacrosse is one of very few sports in this country that can boast of originating from the land proudly called Canada.

# **"OUR COUNTRY - OUR GAME"**

LONG-TERM ATHLETE DEVELOPMENT FOR CANADIAN LACROSSE

**Lacrosse for Life**



## Table of Contents

|                                            |    |                                                          |    |
|--------------------------------------------|----|----------------------------------------------------------|----|
| Foreword .....                             | ii | Roles and Responsibilities .....                         | 12 |
| Introduction .....                         | 1  | Trainability and the 10 S's .....                        | 13 |
| Long-Term Athlete Development (LTAD) ..... | 2  | The Relationship between the Disciplines of Lacrosse ... | 17 |
| Growing with Lacrosse .....                | 3  | Coaching .....                                           | 19 |
| How Can LTAD Build Lacrosse? .....         | 6  | Recommendations and Implementation .....                 | 20 |
| The Factors of LTAD .....                  | 8  | References .....                                         | 21 |

## Acknowledgements

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## Foreword

The Canadian Lacrosse Association (CLA) has produced this Long-Term Athlete Development (LTAD) model after several months of concerted work by the LTAD Work Group at the CLA, including discussion with key members of the Canadian lacrosse community across Canada. The aim of the Lacrosse LTAD is to promote the development and continued success of our sport in Canada by creating an optimal player development pathway for our lacrosse athletes for years to come. In this light, LTAD supports the Vision and Mission of the CLA as outlined in the CLA Strategic Plan 2008-2012.

The Lacrosse LTAD is our sport-specific adaptation of the generic LTAD model developed by Sport Canada and presented in the document *Canadian Sport for Life* (Canadian Sport Centres, 2005). LTAD is significant because it applies the most current international research in athlete development to the long-term task of developing athletes for championship performance. As an additional benefit, it also promotes greater participation for athletes of all abilities and wellness for a larger segment of Canadian society, regardless of whether or not an athlete chooses to pursue an elite or professional career.

This document outlines the basic factors behind LTAD, and then it applies those factors to clearly define the stages of player development for lacrosse. From our understanding of player development, the training content and competition requirements can be defined for each stage. Using the LTAD pathway, our aim is to ensure that Canada continues to develop world class lacrosse players and teams for years to come, and thereby maintain our place as leaders in the sport while promoting ever-growing participation and wellness for Canadians.

## Introduction

Lacrosse has a long history in Canada, and Canadian lacrosse teams and players have had a huge impact on the development and growing popularity of the game, nationally and internationally. Canada has always been a recognized leader in the game, and our country can take pride in the achievements of our teams and players.

However, when you're a leader in a sport, it's natural to want to stay in front of your rivals. That's the nature of competition in sport, and it's particularly true throughout the history of lacrosse.

The question is how can Canada maintain a world class level?



## Lacrosse for Life

The challenge is ensuring that we have a solid pathway for players to enter the sport and develop to their maximum potential. This means we need:

- to create opportunities for the greatest number of youth to start playing lacrosse,
- solid training and competition plans delivered by skilled coaches,
- strong administrative people such as MA executives, club volunteers and team managers, and
- sustainable facilities and financing.

It would be tempting to look at the current successes in Canadian lacrosse and simply say, hey, it ain't broke, so why fix it? No one would deny that Canada in recent years has been a power in both professional and international lacrosse. After all, Canada won World Championships in both field and box lacrosse in 2006, and players such as Gary and Paul Gait, John Grant Jr, Brodie Merrill, Gail Cummings, Colin Doyle, John Tavares and Dana Dobbie have clearly put Canada on the map in the modern game.

## Long-Term Athlete Development (LTAD)

### What?

LTAD is a framework for systematically training and developing physical, mental, and emotional capacities in athletes according to scientifically-recognized principles and stages of human development. As a training, competition, and recovery model, it respects the natural stages of physical, mental, and emotional development in athletes.

### How?

Based on clearly defined developmental stages, LTAD provides recommendations for ratios of training-to-competition hours, points of emphasis in skills training, formats for competition, and more. When adapted to a specific sport such as lacrosse, it provides coaches and administrators with clear guidelines for designing training and competition programs at every developmental stage to optimize long-term skills acquisition and performance.

### Why?

Importantly, LTAD allows athletes the flexibility to move between competitive and recreational arenas of their sport at almost any time of life. Following early athlete development in the first stages of training, and depending on talent, athletes may choose to pursue elite competition or join a recreational stream for fun and wellness. In this way, LTAD supports lifelong wellness for the greatest number of participants even while promoting medal-winning performances.





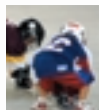
## Growing with Lacrosse

Lacrosse for Life identifies seven basic stages for developing lacrosse players:



### Active Start

Young children begin basic play.



### FUNDamentals

Later childhood provides more structure but emphasizes FUN.



### Learning to Train

Pre-teens prepare for structured training.



### Training to Train

Early teens build training capacities.



### Learning & Training to Compete

Older teens start training to compete for titles.



### Learning & Training to Win

Players train solely for competitive results.



### Active for Life

Players move from formal competition and focus on wellness.



## THE MALE ATHLETE

This table reflects the intended focus of training at each stage, ages of players, and the roles played by lacrosse organizers through the stages:

| LTAD Stage | Focus                  | Time     | Age Range       | Play for              | Competition Host           | Description                                                                                                          |
|------------|------------------------|----------|-----------------|-----------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|
| AS         | Play                   |          | 4-6             | Club                  | Local Assoc.               | Pre-kindergarten, low organized games - FUN                                                                          |
| Fun1       | Learn                  | 1st Half | 7-8             | Club                  | Local Assoc.               | Emphasis on fun; School PE and intramurals<br>SPEED, SUPPLENESS                                                      |
| Fun2       |                        | 2nd Half | 9-10            | Club                  | Local Assoc.               | Skills and drills - SPEED<br>Fair play, modified rules, decrease competition, increase fun                           |
| L2T        | Skill                  |          | 11-12           | Club<br>MA Prov. Team | Local Assoc.<br>CLA w/Host | Start goaltender specialization - SKILL. Ensure fun and participation.                                               |
| T2T        | Game                   | 1st Half | 13-14           | Club<br>MA Prov. Team | Local Assoc.<br>CLA w/Host | Further skill interaction - STAMINA<br>Ensure fair play - AEROBIC CAPACITY                                           |
|            |                        | 2nd Half | 15-16           | Club<br>MA Prov. Team | Local Assoc.<br>CLA w/Host | Increase competition, Start to focus on the game of lacrosse; SPEED<br>Late entry opportunities; AEROBIC POWER       |
| L2C        | Specialize in lacrosse | 1st Half | 17-18           | Club                  | MA                         | Skill refinement - STRENGTH<br>Year-round training begins - late entry opportunities                                 |
| T2C        |                        | 2nd Half | up to 21        | Club                  | MA                         | Full complement of training and game exposure<br>Late entry opportunities                                            |
| L2W        | Elite                  | 1st Half | up to 21<br>21+ | Club<br>Club          | MA / CLA<br>MA / CLA       | Training environment with full Performance Enhancement Team support<br>Full compliment of training and game exposure |
| T2W        | Pro                    | 2nd Half | 21+             | Club<br>CLA Nat. Team | MA / CLA<br>FIL            | Total skill refinement                                                                                               |
| A4L        | Life                   |          | 21+             | Club<br>MA/CLA        | MA / CLA<br>MA             | Divisions by skill, competition and recreation divided<br>Sr. adult - post career                                    |

## THE FEMALE ATHLETE

This table reflects the intended focus of training at each stage, ages of players, and the roles played by lacrosse organizers through the stages:

| LTAD Stage |     | Focus                  | Age Guideline | CATEGORY    |              | Play for                       | Competition Host                        | Description                                                                                                                                                                                                           |
|------------|-----|------------------------|---------------|-------------|--------------|--------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |     |                        |               | Field       | Box          |                                |                                         |                                                                                                                                                                                                                       |
| AS         |     | Play                   | 0-5           | Club        |              |                                |                                         | Pre-kindergarten; Daily physical activities (both organized and unstructured); encourage fundamental movement skills; focus on participation; FUN                                                                     |
| FUN        |     | Learn                  | 6-7           |             | Tyke 7-8     | Club                           | Local Assoc.                            | Skill development should be well-structured, positive and FUN; encourage participation in a variety of sports; School PE and intramurals. <b>SPEED 1, SUPPLENESS</b> ; introduce simple rules.                        |
| L2T        |     | Skill                  | 8-10          | U-11        | Novice 9-10  | Club                           | Local Assoc.                            | Focus on SPORT SKILLS and drills, (accelerated motor co-ordination); NO position specialization                                                                                                                       |
| T2T        |     | Game                   | 11-14         | U-13        | Peewee 11-12 | School Club                    | Local Assoc. MA                         | Combine skills and tactics; train competitive situations (games & drills); increase competition; start goaltender specialization<br><b>SPEED 2; STAMINA (PHV ~12); STRENGTH (post menarche)</b>                       |
|            |     |                        |               | U-15        | Bantam 13-14 |                                |                                         |                                                                                                                                                                                                                       |
| T2C        | L2C | Specialize in Lacrosse | 15-16         | U-17        | Midget 15-16 | High School Club MA Provincial | School Board MA CLA                     | Skill refinement; athlete specific training programs; model high competition in training; some specialization to attack/defense/midfield; late entry opportunities<br>Year-round training begins for National players |
|            | T2C |                        | 17-18         | U-19        | Major 17+    |                                |                                         |                                                                                                                                                                                                                       |
| T2W        | L2W |                        | 18+/-         | U-19 Nat.   |              | U19 Nat. University            | MA / CLA OUA Div.II-III NCAA Div.II-III | Training environment with full Performance Enhancement Team (PET) support. Full compliment of training and game exposure.                                                                                             |
|            | T2W | Elite                  |               | Senior Nat. |              | University Sr. Nat.            | NCAA Div.I FIL                          | Total skill refinement; year round training and game exposure with highest level of support; high intensity/high volume training                                                                                      |
| A4L        |     | Life                   |               | Masters     | Masters      | Club                           | MA                                      | Post career: competition and recreation; coaches; officials. Sr. adult - post career                                                                                                                                  |



## How Can LTAD Build Lacrosse?

In its adaptation to lacrosse, LTAD will maximize the development of lacrosse players across Canada according to a consistent and scientifically-founded methodology for training and development. However, to apply this systematic methodology to training, LTAD has to be supported by the surrounding organizational structures of our sport.

Think of Canadian lacrosse as an integrated “sports system.” There are competition formats to consider, officiating, facility development, coach training, and a host of other components that contribute to the overall development of our players. LTAD has implications for each of these elements, hence a multi-pronged approach needs to be taken to implementing LTAD that deals with all of them. When all components have been adequately addressed, the result will be a comprehensive, rational system of player development supporting LTAD.

Creating such an integrated system can be challenging. In previous instances where LTAD implementation has required changes to a sport culture’s existing methods and procedures, there has often been resistance from groups within the “sport system” who feel their authority is being challenged or their territory invaded. This feeling is not abnormal as it is natural for people to feel anxious about change and “stepping into the unknown,” but it can be a stumbling block if it prevents the sport system from moving forward with improved player development and threatens the long-term success of the sport itself.

From its inception, one of the goals of LTAD has been to address a number of consistent shortcomings in all sports development in Canada. These shortcomings have had serious negative consequences as half of our youth are inactive and not engaging in sport programs of any kind. Canadian lacrosse can benefit by learning from other sport organizations in how they have addressed their gaps in delivery.

## Shortcomings

- Young athletes tend to over-compete and under-train.
- Coaches neglect the sensitive periods when young athletes experience accelerated adaptation to special aspects of training (e.g. stamina, strength, speed, skill and suppleness).
- Winning is emphasized prematurely at young ages, so training becomes geared to short-term game results instead of long-term athlete development.
- Fundamental lacrosse skills are not taught at appropriate ages using appropriate methods.
- Training and competition programs designed for males are imposed on females.
- Adult training and competition formats are often imposed on child and youth athletes.
- Chronological age is used to organize training and competition, rather than developmental age.
- The best coaches work with elite athletes; less-experienced volunteers coach at the developmental level where trained coaches are essential.
- The competition system (e.g. league and tournament schedules) interferes with athlete development.
- There is no talent identification system (TID).
- There is no integration between physical education programs in schools, recreational community programs, and elite competitive programs.
- There is little integration and coordination between the disciplines of lacrosse (box, men's field, and women's field).
- Athletes are encouraged to specialize (by both sport and position) when they are too young.

## Consequences

- Athlete skills are undeveloped and unrefined.
- Skill development is never optimized.
- Athletes fail to reach optimal performance levels when they progress to senior elite competition.
- Athletes develop poor movement abilities.
- Athletes lack proper fitness.
- Athletes develop poor habits from over-competition focused on winning.
- Female athletes do not reach their potential.
- Children do not have fun in adult-based programs and they leave the sport.
- The next generation of international athletes is not systematically developed.
- Athletes over-compete and burnout when pulled in different directions by school, club, and provincial teams.
- Provincial and National team coaches must implement remedial programs to counteract the shortcomings of athlete development.
- Inconsistent national performances due to lack of TID and a player development pathway.
- Athletes fail to reach their genetic potential.
- Competition between box and field programs for players.



## The Factors of LTAD

LTAD is designed to address the shortcomings of the Canadian sport system and remedy their negative consequences. LTAD is based on the most current sport science and practical coaching experience from around the globe, including findings and adopted best-practices from Olympic and national sport organizations in several major sporting nations. From the vast wealth of research, 10 Key Factors have been identified as the underpinnings of LTAD.

### 1. The 10-Year Rule

Research in sport science has determined that it takes at least 10 years and 10,000 hours of training for athletes in any sport to reach their top performance levels. This translates to slightly more than twenty hours of weekly physical activity, training and competition for 10 years.

LTAD has addressed the long-term training needs of players with the 10-year rule firmly in mind. To help our lacrosse players pursue excellence for long-term professional and elite performance, LTAD describes schedules for periodization in training and competition to provide sufficient hours of instruction, practice, and application between necessary periods of rest and recovery.

### 2. The FUNdamentals

All sports are based on fundamental movement skills and sports skills. Fundamental movement skills are often referred to as the ABCs – Agility, Balance, Coordination and Speed. Fundamental sports skills include running, jumping, throwing, striking, catching and dribbling, and a number of these skills are transferable to lacrosse. Research has

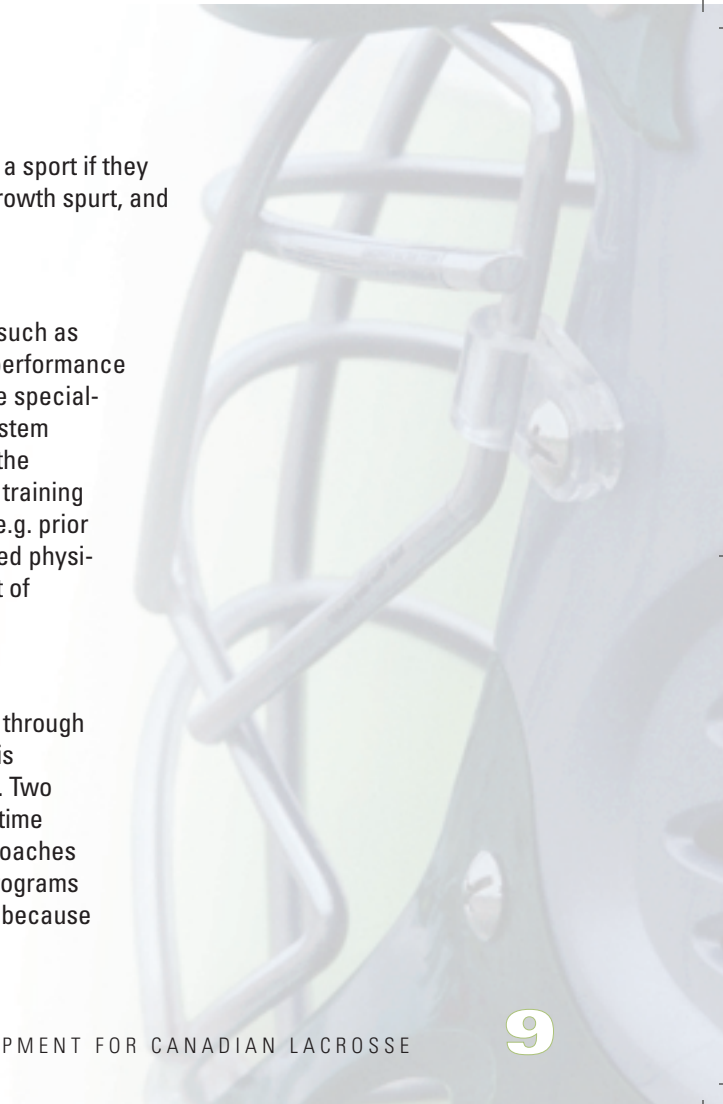
demonstrated that children will experience more success and achievement in a sport if they are trained to be physically “literate” in these skills prior to their adolescent growth spurt, and they will also be more likely to find satisfaction in lifelong physical activity.

### 3. Specialization

Some sports require “early specialization” to obtain elite performance levels, such as gymnastics and figure skating, while other sports demonstrate better athlete performance through “late specialization,” such as team sports including lacrosse. As a late specialization sport, lacrosse relies on a variety of components in the overall sport system (schools, recreation centres, other sports) to develop physical literacy during the FUNDamentals and Learning to Train stages, as well as speed and suppleness training into adolescence. LTAD actively discourages early specialization in lacrosse (e.g. prior to the age of 10 years) since premature specialization contributes to imbalanced physical development, overuse injuries, early burnout, and inadequate development of movement and sports skills.

### 4. Developmental Age

Everyone passes through the same stages of development from early childhood through adolescence, but the timing, rate, and amount of their development varies. This is described as the difference between chronological age and developmental age. Two children may be the same chronological age (e.g. 13 years old), but at the same time they may be four to five years apart in developmental age. LTAD asks lacrosse coaches and administrators to take developmental age into account when they design programs and select players. This is particularly important to box and men’s field lacrosse because children are participating in a contact sport.



## 5. Trainability

The physiological systems of every player can be trained at any age, but there are sensitive periods in the player's development when the body is especially responsive to specific types of movement and skills training. To reach their genetic potential, players need to receive the right type of training at the correct stage of development. If these critical periods are missed, players may grow to be fast, strong, and reasonably skilled, but they will never be as fast, strong, and skilled as they might have been with timely training during the optimal windows of trainability.

## 6. Physical, Mental, Cognitive, and Emotional Development

As players grow from childhood through adolescence, they experience significant changes in physical, mental, cognitive, and emotional development. Coaches and administrators need to consider these changes carefully when they plan training programs and design competition formats. Failure to address these changes may result in mental or emotional burnout, undue mental stress, anxiety, diminished confidence, and early exit from the sport.

## 7. Periodization

Periodization refers to the time frames that are used to schedule player training, competition, and recovery. Lacrosse programs at every stage of player development need to follow a logical and planned schedule to ensure that players remain healthy and achieve optimum performance at the required time. Periodization plans are adjusted at each stage of development to account for player growth, maturation, and trainability.

## 8. Calendar Planning for Competition

The calendar for game competition has a critical impact on player development. Different stages of development have different requirements for the type, frequency, and level of competition. At certain early stages, an emphasis on training and practice in young players is far more beneficial to their long-term performance than formal game competition. Put simply, short-term competitive success should not be emphasized for children and youth players at the expense of their long-term development. If players are to reach levels of excellence and remain active for life, training-to-competition ratios at each stage of development must be sensitive to their long-term needs. An additional challenge for lacrosse is the coordination of competition planning between the disciplines of box and field.

## 9. System Alignment and Integration

LTAD recognizes that long-term player development is influenced by a number of different elements and groups in the overall lacrosse and sports system, such as school teams, physical education programs, recreational activities, lacrosse clubs, and regional, provincial, and national associations. To optimize player development, LTAD asks that these different groups and institutions become integrated and aligned with each other, ensuring that they are mutually supportive, clear in their roles and responsibilities, and aware of how they contribute to player learning and development. Players will best develop in a coordinated lacrosse system that is clearly defined, logically structured, and based upon consistent principles. In addition, LTAD will allow players to identify the opportunities available to them and to understand the pathway they need to follow, whether their aim is long-term excellence or simply remaining active for life. All stakeholders need to have a clear understanding of their roles and responsibilities. *See table on page 12*

## 10. Continuous Improvement

LTAD is based on the best available research in sports science and the best practices in player development around the world, but knowledge and research in sport science is always continuing. The Lacrosse LTAD should respond to new scientific research to ensure that the player development system in lacrosse continually optimizes the systematic and logical delivery of programs. Lacrosse LTAD may even initiate new research based on identified needs or issues. LTAD should drive ongoing education, promotion, and advocacy regarding player development with government, media, educators, parents, coaches, administrators, and sports scientists.

### LACROSSE STAKEHOLDER ALIGNMENT AND INTEGRATION: Roles and Responsibilities

All key lacrosse stakeholders need to have a clear understanding of their roles and responsibilities

|                                  | AS                                                                    | FUN              | L2T                                        | T2T                 | L2C                                        | T2C                 | L2W | T2W                   | A4L                                        |
|----------------------------------|-----------------------------------------------------------------------|------------------|--------------------------------------------|---------------------|--------------------------------------------|---------------------|-----|-----------------------|--------------------------------------------|
| CANADIAN LACROSSE ASSOCIATION    | LEADERSHIP AND PROGRAM DEVELOPMENT, DELIVERY AND DESIGN AT ALL LEVELS |                  |                                            |                     |                                            |                     |     |                       |                                            |
|                                  |                                                                       |                  |                                            |                     | MINOR NATIONALS                            | MAJOR NATIONALS     |     | WORLD CHAMPIONSHIPS   |                                            |
|                                  |                                                                       |                  |                                            |                     | DIRECT SUPPORT TO MEMBERS AND STAKEHOLDERS |                     |     |                       |                                            |
| PROFESSIONAL LACROSSE            |                                                                       |                  |                                            |                     |                                            |                     |     | PROFESSIONAL TRAINING |                                            |
| PROVINCIAL LACROSSE ASSOCIATIONS | LEADERSHIP AND PROGRAM DESIGN, DELIVERY, ADMINISTRATION AND SUPPORT   |                  |                                            |                     |                                            |                     |     |                       |                                            |
|                                  |                                                                       |                  |                                            | SUMMER GAMES        |                                            | PROVINCIAL LEAGUES  |     |                       |                                            |
|                                  |                                                                       |                  | DIRECT SUPPORT TO STAKEHOLDERS AND MEMBERS |                     |                                            |                     |     |                       |                                            |
| REGIONAL ASSOCIATIONS            | LEADERSHIP AND PROGRAM DESIGN, DELIVERY, ADMINISTRATION AND SUPPORT   |                  |                                            |                     |                                            |                     |     |                       | LEADERSHIP                                 |
|                                  |                                                                       | REGIONAL LEAGUES |                                            |                     |                                            |                     |     |                       | REGIONAL LEAGUES                           |
|                                  | DIRECT SUPPORT TO STAKEHOLDERS AND MEMBERS                            |                  |                                            |                     |                                            |                     |     |                       | DIRECT SUPPORT TO STAKEHOLDERS AND MEMBERS |
| LOCAL LACROSSE CLUBS             | IMPLEMENTATION OF PROGRAMS AND TEAM MANAGEMENT                        |                  |                                            |                     |                                            |                     |     |                       |                                            |
|                                  | LOCAL TEAMS                                                           |                  |                                            |                     |                                            |                     |     |                       |                                            |
|                                  | DIRECT SUPPORT TO MEMBERS                                             |                  |                                            |                     |                                            |                     |     |                       |                                            |
| SCHOOLS / UNIVERSITIES           |                                                                       |                  |                                            | ACCREDITED PROGRAMS |                                            |                     |     |                       |                                            |
|                                  | PHYSICAL LITERACY                                                     |                  |                                            | ACADEMIES           |                                            | COLLEGES / US & CDN |     |                       |                                            |



## Trainability and the 10 S's

LTAD requires the integration of 10 S's of training when developing annual training and competition plans. The first five of the 10 S's describe the physical capacities of players: stamina (endurance), strength, speed, skill, and suppleness (flexibility). Coaches monitor the remaining 5 S's to provide holistic balance in each player's development: structure/stature, (p)sychology, sustenance, schooling, and socio-cultural needs.

Each of the first five physical capacities is trainable throughout a player's lifetime, but there are clearly sensitive periods in the development of each capacity when training produces the greatest benefit to each player's long-term development. These critical periods in trainability are referred to as "windows of accelerated adaptation to training."

The sensitive windows vary according to each player's unique genetic makeup. While they follow general stages of human growth and maturation, scientific evidence shows that the critical windows may vary considerably between players, as witnessed in the different magnitude and rate of player response to different training stimuli at all stages.

Some players may show potential for excellence by age 11, whereas others may not indicate their promise until age 15





or 16. Consequently, a long-term approach to player development is needed to ensure that players who respond optimally to training stimuli are not “short-changed” in their development.

It should be noted that all of the first five S’s can be developed at any stage or age; however, the sensitive periods of trainability provide the best opportunities for the greatest gains in player development in these areas.

### 1. Skill

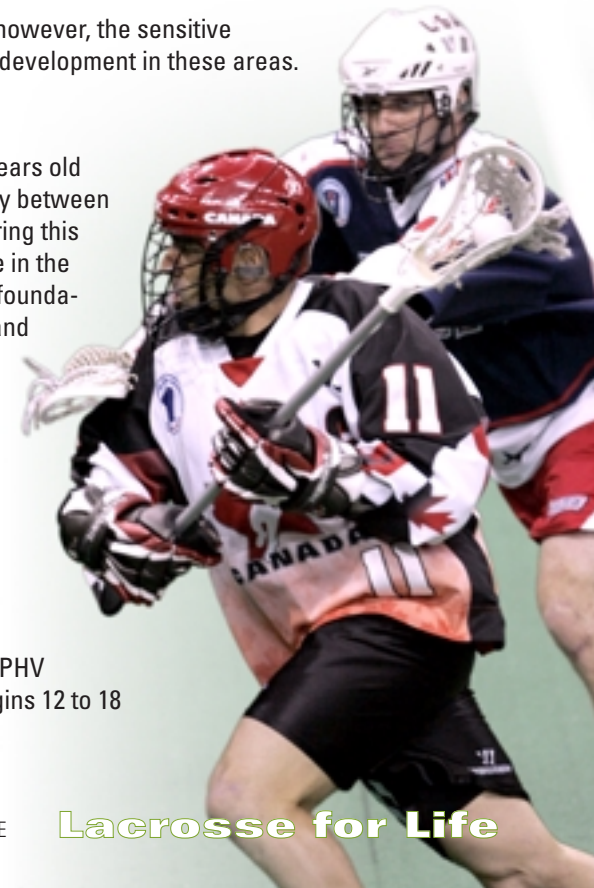
Girls and boys both have one window for optimal skill training which is from 8 or 9 years old ending at the beginning of the growth spurt. Therefore for girls the window is usually between ages 8-11 years, while in boys it is between 9-12 years (Learning to Train stage). During this window, young players should be developing physical literacy – that is, competence in the fundamental movement and sport skills along with sound decision making form the foundation of all sports. Competence in these skills will make it easier for players to learn and excel later in all late-specialization sports, including lacrosse.

### 2. Stamina (Endurance)

The sensitive period for training stamina occurs at the onset of Peak Height Velocity (PHV), commonly known as the adolescent growth spurt. Players need increased focus on aerobic capacity training as they enter PHV, and they should be progressively introduced to aerobic power as their growth rate decelerates.

### 3. Strength

There are two critical windows of trainability for strength in girls: immediately after PHV and after onset of menarche. Boys have one sensitive period for strength, and it begins 12 to 18 months after PHV.



#### 4. Speed

In both boys and girls, there are two sensitive periods of trainability for speed, and they are based on chronological age. For girls, the first speed window occurs between ages 6-8 years, and the second window occurs between 11-13 years. For boys, the first speed window occurs between ages 7-9 years, and the second window occurs between 13 and 16 years. During the first speed window, training should focus on developing agility and quickness; during the second speed window, training should focus on developing the anaerobic alactic energy system.

#### 5. Suppleness

The sensitive period of trainability for suppleness occurs between ages 6-10 years in both girls and boys. However, special attention should also be paid to flexibility during PHV.

#### 6. (p)Sychology

Sport is a physical and mental challenge. The ability to maintain high levels of concentration, yet remain relaxed with the confidence to succeed, is a skill essential to long-term performance in lacrosse. This skill also has the potential to transcend lacrosse and enhance the everyday lives of players.

#### 7. Structure / Stature

This component describes the six stages of growth in the human body and links them to the windows of optimal trainability. Stature (individual height) is measured before, during, and after maturation to help coaches and parents track developmental age. By tracking developmental age, coaches can identify the sensitive periods of skill acquisition and physical development (endurance, strength, speed and flexibility) and design training programs accordingly.

#### 8. Sustenance

Sustenance recognizes a broad range of components that serve the central purpose of replenishing the body, thereby preparing the player for the volume and intensity required to optimize training. Sustenance addresses several areas: nutrition, hydration, rest, sleep, and regeneration. While overtraining or over-competition can lead to burnout, improperly addressing sustenance can lead to the same result.

## 9. Schooling

In designing a training program, the demands of school must be considered. This is not limited to the demands placed by school sports or physical education classes, but it also includes consideration of school academic loads and timing of exams. When possible, training camps and competition tours should compliment, not conflict, with the timing of major academic events at school. Coaches should monitor overstress in their players resulting from schooling, exams, peer groups, family, and boyfriend or girlfriend relationships, as well as increased training volume and intensities. A good balance should be established between all factors.

## 10. Socio-Cultural

Lacrosse exposes players to forces of socialization at the community level, and it can also lead to international exposure as players progress through the LTAD stages. This socio-cultural aspect of lacrosse can broaden the social perspective of players, including ethnicity awareness and national diversity. Socio-cultural develop-

ment may be integrated within competition travel schedules, where recovery periods can include education about the competition location, including things such as history, geography, architecture, cuisine, literature, music, and visual arts. With proper annual planning, lacrosse can offer much more than a simple commute between hotel room and field of play, creating a broadened socio-cultural awareness in players.

## Other Considerations in Trainability

Children often begin to play lacrosse after the windows of trainability for speed, skill, and suppleness have passed.

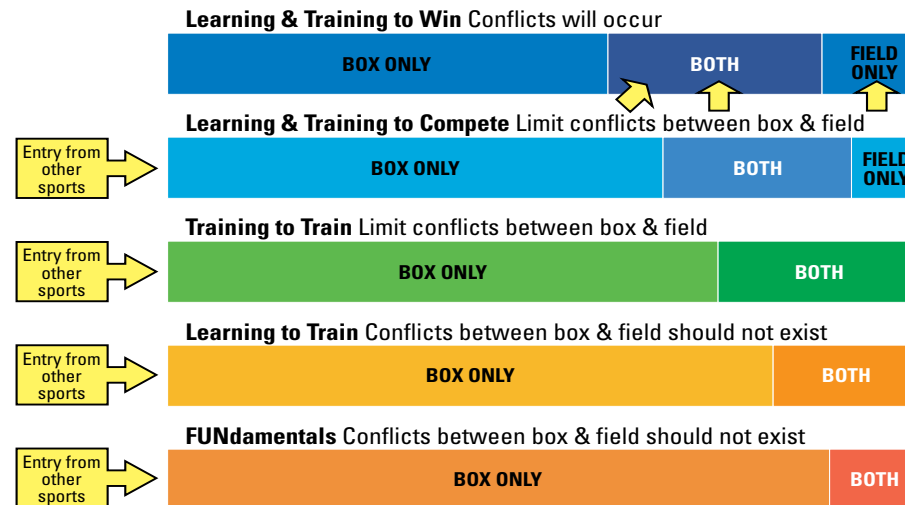
These children are therefore dependent on schools, recreation programs, and other sports to provide timely training in these capacities. LTAD advocates that lacrosse groups build relationships with these organizations to promote and support appropriate training. If players miss these training periods entirely, coaches will need to design individualized programs to remedy any shortcomings.



## The Relationship between the Disciplines of Lacrosse

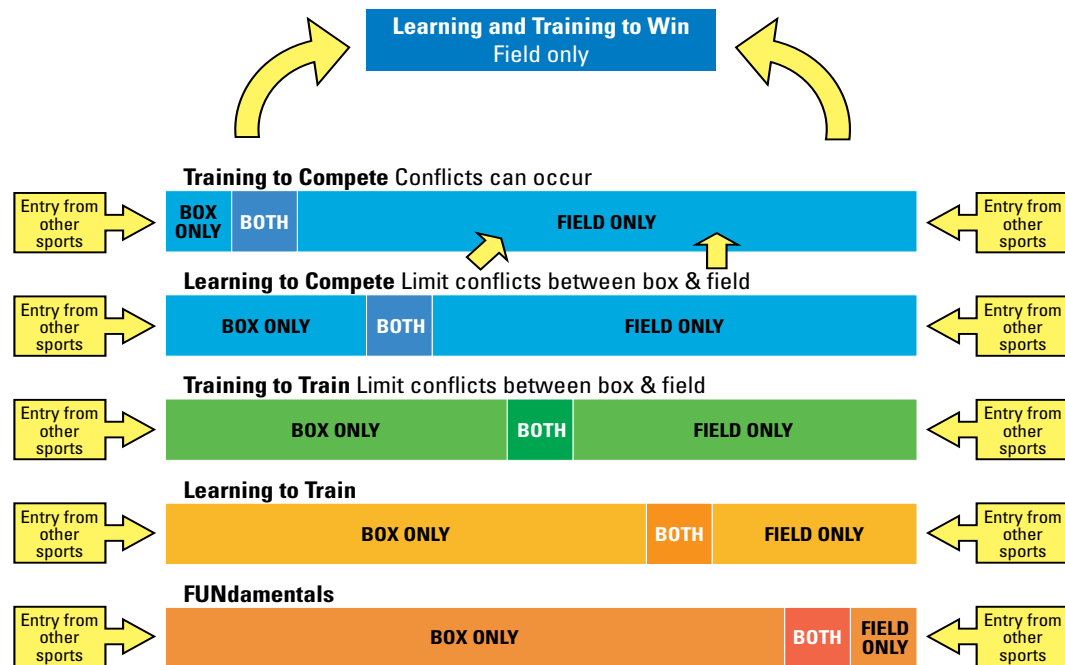
Lacrosse experts agree there is a positive relationship between the Field and Box discipline from a development perspective. Therefore it is better for a developing player to play both disciplines. However in the later stages as sport specialization increases it becomes difficult to refine and excel in both.

### Men's Box / Field Lacrosse Integration Pathway



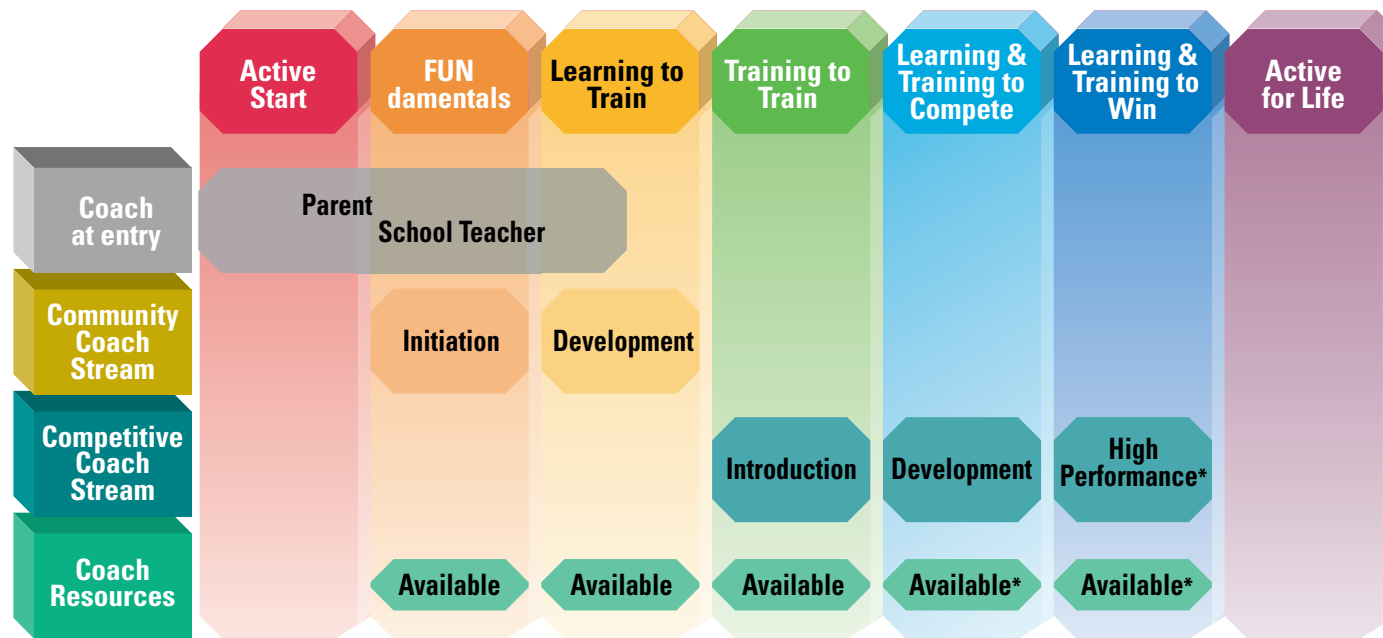
NOTE: 'Conflicts' refers to situations where a player is involved in both field and box disciplines and the demands of the disciplines (i.e. tournaments) interfere with one another.

## Girl's Box / Field Lacrosse Integration Pathway



NOTE: 'Conflicts' refers to situations where a player is involved in both field and box disciplines and the demands of the disciplines (i.e. tournaments) interfere with one another.

## Coaching The LTAD in relation to NCCP...



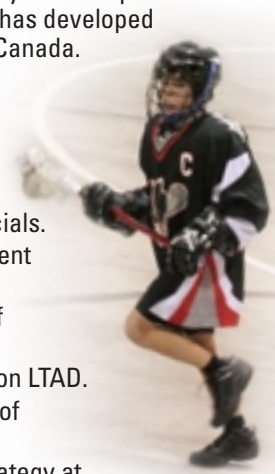
\* Future development



## Lacrosse LTAD Recommendations and Implementation

The Lacrosse LTAD Work Group examined lacrosse programs in Canada and the issues and challenges facing player development across the country. In consultation with stakeholders from provincial and member associations, the Work Group has developed the following series of Strategic Initiatives and Recommendations for improving lacrosse player development in Canada.

1. Create awareness of LTAD among parents.
2. Complete a Competition Review.
  - a) Recommend 'Training to Competition' ratio which would include:
    - i. Off floor training;
    - ii. Training (practice);
    - iii. Competition specific training (practice);
    - iv. Games (competition).
  - b) Re-write the rule books to be consistent with LTAD.
  - c) Examination of tiering.
  - d) Develop a competition calendar.
  - e) Review and provide recommendation on the impact of NCAA, MLL and NLL on player development and the competition calendar.
3. Develop a Skills Program to enhance development. e.g. Baseball Canada (Rally Cap).
4. Create and implement a Club quality standards recognition program. e.g. Baseball (RBI).
5. Develop a national sport school and camp program and curriculum. e.g. Hockey Canada (HCSA).
6. Review, revise and integrate LTAD into all coaching materials and courses.
7. Develop a strategy to increase technical expertise at the community, regional, provincial and national levels.
8. Develop a long-term officials development model including major and minor officials.
9. Develop a long-term strategy for development of lacrosse specific practitioners.
10. Develop a strategy to expand knowledge of sport science information.
11. Create a Talent Identification Guide based on LTAD.
12. Create strategies to allow for participation of 'late entry' athletes.
13. Develop a facility use and management strategy at each stage of LTAD.
14. Seek funding sources to assist in LTAD implementation and initiative development.
15. Create a financial framework to initiate and sustain programs nationally, provincially and locally required for proper implementation of LTAD.
16. Implement the LTAD across Canada by providing the MAs with an LTAD Implementation Guide.



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