Field Hockey
CANADA
Hockey sur gazon

LONG TERM HOCKEY DEVELOPMENT

IMPLEMENTATION RESOURCE PAPER

Preface

Canadian Sport Policy reflects an approach to shared leadership and collaboration amongst all stakeholders to achieve the goals of enhanced participation, excellence, capacity and interaction in sport. As a result of this policy a new Canadian sport system has emerged. A sport system in which long term development is the key element.

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An Introduction

Children who enjoy playing field hockey from a young age will be healthy and more likely to continue in life long physical activity. In addition, if they are well trained and have access to an appropriate development pathway, more of them will reach elite playing levels that enable our National Teams to qualify and compete consistently at World Cups and Olympic Games. Long-Term Hockey Development (LTHD) addresses the important role that field hockey has in promoting wellness and also provides an athlete development pathway for World Cup and Olympic success.

FHC wants to increase the number of Canadians participating in our sport across the country. We also want to improve our National Men's and Women's Teams' world rankings. The paths to achieving these goals are complex. While we can take elements of what has worked for us in the past, we will still need to take a different strategic approach then the one we have had for the past 20 years.

Led by the LTHD expert panel and technical leaders, FHC has identified many of the challenges facing field hockey and laid out a vision and general course for implementation. The pathway involves shared leadership and cooperation from the local coach to the international governing body.

This document is just the start of a growing number of resources to aid in achieving the LTHD vision. To better adapt to the ongoing evolution of our sport and provide practical tools to our vast array of stakeholders (coaches, umpires, parents, volunteers, etc.) FHC has created an interactive website designed specifically for our members to explore LTHD. This resource, among others, is available to download and will be updated from time to time.

Please continue to visit us at www.lthd.fieldhockey.ca for the latest LTHD information.

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Field Hockey: A Sport for Everyone

The origins of field hockey can be traced back to the earliest civilizations of the world, but the modern game was developed in England during the nineteenth century. Many rules and concepts changed during the early years as the game spread throughout the British Empire. From these origins sprung not only the formidable field hockey nations of India, Pakistan and Australia, but the development of the game in over 100 countries.

While the game developed across the globe during this time, so too did field hockey in Canada. Both men's and women's field hockey was established and flourishing in British Columbia before the end of the nineteenth century. Records show that as early as 1896 clubs in Vancouver and on Vancouver Island were enjoying regular competitions. In the early twentieth century records show games being played by schools and clubs in Calgary, Toronto, Halifax, and St. John's.

Field hockey began to organize at a national level in 1961 with the creation of the Canadian Field Hockey Association. The Canadian Women's Field Hockey Association was formed a year later. In 1991 both the men's and women's associations merged to become Field Hockey Canada (FHC). FHC has been the national governing body responsible, in conjunction with our Provincial Associations, for the development of the game ever since.

Today, the game of field hockey is played virtually everywhere in the world and is the second largest team sport by participants after soccer. In Canada both the indoor and outdoor versions of field hockey remain a popular family-oriented sport played in every province. The sport is played most abundantly by girls in the high school system however male and female competitive and recreational leagues can be found in urban centres from coast to coast.

The men's and women's national teams regularly compete in international competitions held around the globe. Both genders have represented their country in major contests such as the World Cup, Commonwealth Games, Pan American Games, and Olympics. At any given time throughout the year Canadian athletes, coaches, officials, or volunteers can be found participating in their sport at various competitive levels in places such as Europe, Asia, and Oceania.

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Understanding Long-Term Development

LTAD and LTHD

The Long-Term Athlete Development (LTAD) model is a framework developed by the Canadian Sport Centres providing an optimal training, competition, and recovery schedule that respects and utilizes the natural stages of physical, mental, and emotional growth in athletes. This framework has been adopted by major sports organizations in the United Kingdom and Ireland.

Long-Term Hockey Development (LTHD) is FHC's field hockey-specific adaptation of the LTAD model. It is athlete-centred, coach driven, and supported by officials, administrators, and volunteers. As with the LTAD, LTHD is designed to:

1. Promote lifelong enjoyment of physical activity
2. Provide a structured player development pathway
3. Describe best practices for elite player development
4. Create long-term excellence

Excellence and Sport for Life

Anecdotal evidence for a Field Hockey athlete suggests that it takes 15,000 touches of the ball for an athlete to reach an elite level. Additionally, scientific research has demonstrated it takes eight to twelve years of training for players to reach elite levels. This translates into a little more than three hours of daily practice for ten years. (Balyi & Hamilton, 2003). This indicates the importance of long-term training for obtaining athletic excellence and competitive results. It has also been suggested athlete training following logical, progressive development pathways is linked to higher rates of lifelong recreational participation for individuals of all abilities.

Many field hockey coaches continue to train youth athletes in a manner that places emphasis on "fun" and "retention" while others emphasize "winning" a match or "winning" the season championship. These approaches are coach or parent-centred and are frequently neglectful of the long-term needs of the athletes. Both of these types of outcomes are given more importance than skill development, performance, and satisfaction. However it is the latter outcomes that can translate into higher levels of excellence and lifelong commitment to training and participation.

To produce lifelong wellness and consistent international excellence, an athlete-centred integrated model of player development is required. The model must respect the physical, mental, and emotional maturation of the players.

Planned Excellence

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UNDERSTANDING LONG-TERM DEVELOPMENT

The current system for Athlete Development emphasizes winning and competition rather than maximizing the periods of accelerated adaptation to training and developing core field hockey skills. LTHD is based on general findings that the greater the quality of player preparation, the greater the likelihood that players of all abilities will remain active throughout their lifetimes, and the greater the likelihood that the performance peaks of those who pursue excellence will be higher and maintained over a longer period.

Rushing into competition frequently results in technical, physical, tactical, psychological, and emotional shortcomings that hinder performance. While premature competition actually detracts from performance and achievement, progressive player development following balanced formula of training, competition, and recovery tends to produce longer involvement in sport and higher achievement.

LTHD is designed to promote lifelong wellness for all field hockey participants and optimal performances for the elite players, particularly in the growth and development years when performances can become unstable and lead to dropout.

LTHD encourages athletes to enjoy the game and improve their performances through:

- Logical and integrated training and practice programs;
- Application of scientific principles in growth, development and maturation;
- Provision of an optimal structure for competition at stages of LTHD;
- Identification of stakeholder roles in the implementation of the support systems of athlete development (ie. Coaching, officiating).

Public Perception

Field Hockey has an important role to play in the larger sport culture of our country. There is an intrinsic value in having our elite athletes represent Canada on the international stage. When Canadians watch the Olympic Games or any other major world sporting event, we cheer our athletes and are proud to see our nation competing among the best in the world.

Field Hockey is no exception in this regard. Canada excels to be among the top nations in this sport making our athletes a source of our national pride, dreams, and expectations. Canadians of all ages want to see their national teams compete and succeed at the international level. The LTHD pathway is designed to achieve this goal.

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Current State of Canadian Field Hockey

LTHD can provide solutions to many of the challenges facing Canadian field hockey. However before we look for answers, we need to have a clear understanding of where we are and a vision of where to go.

Canada has a significant number of junior athletes participating in field hockey. However participation quickly diminishes in late adolescence. From an excellence perspective these diminishing numbers are a factor contributing to our lack of sustained international success. From a sport for life perspective, our inability to promote lifelong wellness through field hockey post-adolescence contributes to ongoing gaps in coach, official, and volunteer recruitment, as well as the basic health of all Canadians.

System Issues

Canada needs an integrated model for promoting elite achievement through field hockey. In this regard, there are several issues of concern field hockey shares with other sports in Canada:

- Young players over-compete and under-train
- Young players often follow adult training and competition schedules
- Young female players often follow programs designed for males
- Training/practice in the development years often focuses on winning and not development (short term results versus long-term process)
- Chronological age influences coaching and selection rather than biological age (physical maturation)
- Poor programs between the ages of 6-16 result in athletes never reaching their genetic potential
- The “best” coaches are encouraged to work at elite levels – they are not recognized as essential to the success of developmental programs in novice groups
- Coach education tends to provide only a superficial understanding of the growth, maturation and development stages of young players
- There is no integration between physical education programs in the school system, community recreational programs, and elite competitive programs.

Most Canadians are not instructed in the fundamental movement skills at an early age. Instead, young athletes find that much of their training comes in the form of competitive games in a “win at all costs” environment. This omission in basic athletic preparation is a key failure preventing athletes in all sports from developing their full genetic potential.

Due to shortcomings in coach education, many coaches are not aware this approach fails to utilize windows of “trainability” for developing certain qualities and skills. Unfortunately the deficits players develop can never be

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fully remedied. As these young players progress through their playing careers, their lack of basic skill mastery means that they are unable to play and enjoy field hockey to their full capacity. Consequently they fail to develop the deeper satisfaction and appreciation of the game that would motivate them to remain lifelong participants or inspire them towards long-term elite development.

LTHD offers to remedy this situation by providing a logical training, competition, and recovery model following the natural windows of opportunity in each player's physical, mental, and emotional development. To date, the implementation of the LTAD-based programs in Canada and other countries indicates that the LTAD framework upon which LTHD is based addresses these sport system shortcomings and significantly enhances the long-term development of participants and athletes.

Challenges

To appreciate how LTHD can support the development of Canadian field hockey participants and lifelong wellness, we first need to understand the challenges that currently face field hockey in this country. Canadian field hockey faces a spectrum of difficulties in the long-term development of athletes in both lifelong wellness and elite excellence. In this document these challenges have been broadly categorized under player development, coaching, leadership, competition, and facilities.

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International Standing

The National Women's Team was very successful in the 1980's and early 1990's having competed in the 1984, 1988, and 1992 Olympic Games and achieving World number 2 ranking in 1983. Since that time we have declined to 19th place (FIH Ranking March 2011).

The Men's Team had a very successful period in the late 1990's having been ranked in the top 8 in the world. They are currently ranked 10th (FIH Ranking March 2011). The Men's Team has competed in the 1984, 1988, 2000, 2008 Olympic Games.

Men's Senior National Team			**Women's Senior National Team**		
Year	**Event**	**Result**	**Year**	**Event**	**Result**
1983	Pan American Games	1st	1983	World Cup	2nd
1984	Olympic Games	10th	1984	Olympic Games	5th
1986	World Cup	10th	1986	World Cup	3rd
1987	Pan American Games	1st	1987	Pan American Games	3rd
1988	Olympic Games	10th	1988	Olympic Games	6th
1990	World Cup	10th	1990	World Cup	10th
1991	Pan American Games	2nd	1991	Pan American Games	2nd
1992	Olympic Games	DNQ	1992	Olympic Games	7th
1994	World Cup	DNQ	1994	World Cup	10th
1995	Pan American Games	2nd	1995	Pan American Games	3rd
1996	Olympic Games	DNQ	1999	Pan American Games	3rd
1998	World Cup	8th	2003	Pan American Games	5th
1999	Pan American Games	1st	2007	Pan American Games	5th
2000	Olympic Games	10th	The women's team has not qualified for a World Cup or Olympic Games since 1994		
2002	World Cup	DNQ			
2003	Pan American Games	2nd			
2004	Olympic Games	DNQ			
2006	World Cup	DNQ			
2007	Pan American Games	1st			
2008	Olympic Games	10th			
2010	World Cup	11th			

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Ten Key Factors Behind LTHD

The LTHD model is built on the following research, principles and tools.

1. The 10-year Rule

Scientific research has determined that it takes at least 10 years and 10,000 hours of training for athletes in any sport to reach elite performance levels. While the LTHD model promotes basic physical wellness for a broad range of field hockey participants regardless of ability or disability, it has also been designed to address the long-term needs of players who pursue excellence for World Cup or Olympic performance according to the 10-year rule.

2. The FUNdamentals

All sports are based on fundamental movement skills and sports skills. Basic movement skills include agility, balance, and coordination, while basic sports skills include running, jumping, throwing, kicking, catching, and dribbling. Research has demonstrated that children will achieve excellence in a broad variety of sports if they are trained to be physically “literate” in these basic 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. As a late specialization sport, field hockey relies on a variety of components in the overall sport system (schools, recreation centres, other sports) to develop physical literacy during the FUNdamental stage, as well as speed and suppleness training into adolescence. LTHD actively discourages early specialization in field hockey (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. 11 years old), but at the same time they may be four to five years apart in developmental age. LTHD asks field hockey coaches and administrators to take developmental age into account when they design programs and select players.

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5. Trainability

The physiological systems of every player can be trained at any age, but there are critical 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, jump high, and strike well, but they will never be as fast, jump as high, or strike as well as they might have done with timely specialized training.

All Systems Are Always Trainable!

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. Field hockey programs at every stage of player development need to follow a logical and scientific schedule to ensure that players remain healthy and achieve optimum performance at the required time. Periodization plans are

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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 the development of each player. Different stages of development have different requirements for the type, frequency, and level of competition. At certain stages, training physical capacities in players is more beneficial to their long-term performance and wellness than formal match 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.

9. System Alignment and Integration

LTHD recognizes that long-term player development is influenced by a number of different elements and groups in the overall field hockey and sports system, such as club teams, physical education programs, recreational activities, school programs, and provincial associations. To optimize athlete development, LTHD 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 field hockey system that is clearly defined, logically structured, and based upon consistent principles. Through LTHD, players are able 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.

10. Continuous Improvement

LTHD is based on the best available research in sports science and the best practices in player development around the world, but knowledge and research continue to grow. LTHD should respond to new scientific research and field hockey-specific innovations to ensure that the development system continually optimizes the systematic and logical delivery of programs, and LTHD may even initiate new research. As well, LTHD should drive ongoing education, promotion, and advocacy regarding player development with government, media, educators, parents, coaches, administrators, and sports scientists.

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Training and Performance

There are ten “S”s of training which need to be integrated when developing annual training and competition plans. The ten “S”s include five physical capacities that sport scientists have identified in player development: stamina (endurance), strength, speed, skill, and suppleness (flexibility). The remaining five “S”s create a complete, holistic training program building on these physical capacities.

Each capacity is trainable throughout a player’s lifetime, but there are critical periods in the development of each capacity during which training produces the greatest benefit to each athlete’s long-term development.

These sensitive periods vary between individuals as each player is unique in their genetic makeup. While the sensitive periods follow 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 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 athlete development is needed to ensure athletes who respond slowly to training stimuli are not compromised in their development. The sensitive periods in trainability are referred to as “windows of accelerated adaptation to training.”

If players are to reach their genetic potential, correct training must be provided during these critical windows.

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.

Strength

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

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Speed

In both boys and girls, there are two sensitive periods of trainability for speed. For girls, the first speed window occurs between the ages of six and eight years, and the second window occurs between 11 and 13 years. For boys, the first speed window occurs between the ages of seven and nine 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.

Skill

Girls and boys both have one window for optimal skill training. For girls, the window is between the ages of eight and 11 years, while in boys it is between nine and 12 years. During this window, young players should be developing physical literacy – that is, competence in the fundamental movement and sport skills (including decision-making skills) that are 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 field hockey.

Suppleness

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

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

Structure / Stature

This component addresses the six stages of growth (Phase 1: very rapid growth and very rapid deceleration; Phase 2: steady growth; Phase 3: rapid growth; Phase 4: rapid deceleration; Phase 5: slow deceleration; Phase 6: cessation of growth) in the human body linking them to the windows of optimal trainability. It recognizes stature (the height of a human) before during and after maturation guiding a coach or parent to the measurements needed to track growth. The tracking of stature as a guide to developmental age allows planning to address the sensitive periods of physical (endurance, strength, speed and flexibility) and skill development. Diagnostics to identify individually relevant sensitive periods of accelerated adaptation to training is essential to design and implement optimal training, competition and recovery programs.

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The Six Phases of Growth
(Adapted from The Role of Monitoring Growth in LTAD)

(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 sport. This skill also has the potential to transcend sport and affect our everyday lives. To develop the mental toughness for success at high levels, training programs are required which address the specific gender and LTHD stage of players. The training programs should include key mental components identified by sport psychologists: concentration, confidence, motivation, and handling pressure. As a player progresses through LTHD stages, the mental training aspect will evolve from: having fun and respecting opponents; to visualization and self-awareness; to goal setting, relaxation, and positive self-talk. To master the mental challenge of sport, these basic skills are then tested in increasingly difficult competitive environments. Ultimately, the planning, implementing, and refining of mental strategies for high-level competition will have a large impact on podium performances. Consequently, the mental training program is critical at all stages of LTHD, as dealing with success and failure will determine continuation in the game and physical activity in general, dramatically affecting both active lifestyle and podium performance.

Sustenance

Sustenance recognizes a broad range of components with the central theme of replenishing the body. This is to prepare the player for the volume and intensity required to optimize training or living life to the fullest. Areas addressed are: nutrition, hydration, rest, sleep, and regeneration, all of which need to be applied differently to training (life) plans depending on the stage of LTHD. Underlining sustenance is the need for optimal recovery management: the player moves to a 24/7 model which places a high degree of importance on the individual's activities away from the field of play. For proper sustenance and recovery management, the coach and/or parent

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must monitor recovery through the identification of fatigue. Fatigue can come in forms that include metabolic, neurological, psychological, environmental, and travel. While overtraining or over-competition can lead to burnout, improperly addressing sustenance can lead to the same result.

Schooling

In training program design, the demands of school must be considered. This is not only 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. Overstress should be monitored carefully. Overstress refers to the every day stresses of life, such as 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, and coaches and parents should work together in this regard.

Sociocultural

The sociocultural aspects of sport are significant and must be managed through proper planning. Socialization via sport occurs at the community level, and it can lead to International exposure as players progress through the LTHD stages. This socialization can involve broadening of perspective, including ethnicity awareness and national diversity. Within the travel schedule, recovery can include education related to the competition location, including history, geography, architecture, cuisine, literature, music, and visual arts. Proper annual planning can allow sport to offer much more than simply commuting between hotel room and field of play.

Sport socialization also must address sport subculture to ensure general societal values and norms will be internalized via sport participation. As well, coaches and parents must guard against group dynamics which create a culture of abuse or bullying. Ethics training should be integrated into training and competition plans at all stages of LTHD. Overall sociocultural activity is not a negative distraction or an interference with competition activities: It is a positive contribution to the development of the person and the player.

Other Considerations in Trainability

Children often begin to play field hockey after the sensitive periods of trainability for speed, skill, and suppleness have past. These children are therefore dependent on schools, recreation programs, and other sports to provide timely training in these capacities. LTHD advocates that field hockey 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.

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Stages of LTHD

Sports can be classified as early or late specialization. Sports such as gymnastics and figure skating qualify as early specialization, while other sports such as soccer and field hockey are classified as late specialization.

Because field hockey is a late specialization sport, LTHD actively discourages early specialization since premature specialization contributes to imbalanced physical development, overuse injuries, early burnout, and inadequate development of movement and sports skills.

In harmony with the Long-Term Athlete Development (LTAD) model developed by Canadian Sports Centres and currently being adopted by over 50 sports organizations in Canada and around the world, LTHD recognizes these 7 stages in the development of field hockey players:

- Stage 1: Active Start: Ages 0-U6
- Stage 2: FunStix: Ages 6-10
- Stage 3: Learning to Train: Ages 9-12 males, 8-11 females
- Stage 4: Training to Train: Ages 12-16 males, 11-15 females
- Stage 5: Training to Compete: Ages 16-19
- Stage 6: Training to Win: Ages 19 and beyond
- Stage 7: Hockey for Life: All ages

The first three stages of LTHD encourage physical literacy for all players, regardless of their abilities or disabilities, and correspond to the ages prior to the adolescent growth spurt (PHV). Stages four, five, and six focus on developing excellence and correspond to PHV's onset and aftermath. Stage seven encourages lifelong physical activity, and players may choose to enter this stage at any time in their playing career.

FHC has identified the LTHD pathway as the desired model for player development in Canada. LTHD answers the need to develop elite players for international competitions such as the World Cup, Olympic Games, and Champions Trophy. It also promotes field hockey as an active lifestyle for athletes at all ages and levels of ability.

Detailed guidelines are provided in this document for the physical, technical, tactical, mental, and health components recognized as essential to athlete development in each stage of our sport.

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Active Start

Boys and Girls Age 0 – U6

This stage sees young children beginning to learn and adapt basic movement and motor skills through various scenarios and environments they are involved in on a daily basis. Physical activity should be fun and part of a child's daily life (home, playground, daycare, elementary school programs, community clubs etc.). The emphasis is on discovery and building confidence of physical literacy in a positive surrounding.

An early active start enhances development of brain function, coordination, social skills, gross motor skills, emotions, leadership, and imagination. It also helps children build confidence, develop posture and balance, build strong bones and muscles, promote healthy weight, reduce stress, improve sleep, learn to move skilfully, and learn to enjoy being active.

Children should see at least 30 minutes of organized physical activities and hours of unstructured play in a wide variety of sports and physical activity every day. Activities can be in bouts of 5-10 minutes but, except when sleeping, no more than 60 minutes at a time of sedentary activity is recommended. Allow children to learn and experiment with basic movement and motor skills in a fun and encouraging environment.

Physical

Fun, structured and unstructured activities are used to learn and promote physical literacy. ABC's, (Agility, Balance, Coordination) and Speed and Run, Jump, Throw are put into effect.

Mental

Promote fun, discovery, participation, and reinforce individual efforts.

Mental capabilities: Fun and enjoyment of the game, participation and sportsmanship, positive interaction with others, and building confidence and self esteem.

Some implications for the coach: Promote participation and enjoyment of the game, provide positive reinforcement for efforts, select activities in which success is almost always guaranteed, progress from simple to complex in a gradual fashion, de-emphasize outcome and encourage fun, and focus on participation and good spirit versus outcome

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Health

Participants have at least 30-60 minutes of organized physical activities and hours of unstructured play every day. Activity can be in bouts of 5-10 minutes but no more than 60 minutes of sedentary activity at a time (except when sleeping).

Nutrition: Promote healthy weight and encourage a variety of low fat, high in nutritional content meals. Allow child to eat as needed letting him/her use their natural ability to monitor and control food intake. Participants may need to eat smaller amounts more frequently. Optimization of hydration is important.

Participants should sleep as much as desired.

Strength and Flexibility: Greater strength in neck and back muscles than abdominals.

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FunStix

Boys and Girls Age 6-10

In the FunStix stage children need to participate in a variety of well-structured activities that develop basic field hockey skills and promote interest in physical activity. Physical literacy continues to be developed through activities involving the athlete in as many sporting activities as possible throughout the week. It is important that all children master fundamental movement skills before sport specific skills are introduced.

Competition should involve no formal game play. Modified games, such as the FunStix mini game, should be introduced. All activities are fun-based. The focus should be on creating self-esteem within participants by reinforcing individual effort and not keeping score. Activities should be incorporated into everyday life including unstructured play with friends and through quality instruction in a structured environment in physical education classes, hockey clubs, and junior programs designed by provincial field hockey associations.

The first window of trainability for speed, particularly hand and foot speed, as well as the trainability windows for flexibility and fundamental skills occurs at this stage. This refers to the point in the development of a specific area when training has an optimal effect. However it should be noted all systems are always trainable!

Physical
Fun fitness activities are used to begin developing aerobic fitness, muscular strength/endurance with own body weight, flexibility, and stability. This stage features the first “window” of speed training (accelerated adaptation to training), for girls 6-8 girls and boys 7-9.

Developing physical literacy is fundamental with emphasis on developing basic movement skills: Running, Jumping, Striking, Catching, and General Motor Abilities (ABCs: Agility, Balance, Coordination, Speed).

Technical
Athletes are introduced to the Five FunStix Principles of Hockey and their related stage-appropriate skills. These Principles are:

- Ball Movement and Control
- Passing & Receiving
- Scoring
- Winning the ball from Opponents
- Mini and Modified Games

Hockey Skill Introduction: Open stick dribbling, Indian dribble, push pass, backhand pass, closed receiving, and

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double-handed block tackle.

All skills should be trained in both stationary and dynamic positions. As a unique aspect of field hockey, particular emphasis should be on the use of the reverse side of the stick and turning the stick over. This is a significant motor skill requiring introduction at this early age.

Tactical
The push pass, and its associated decision-making component, is the most important basic tactical skill in this stage. The most essential decisions around passing are: Timing, Direction, and Speed.

In the modified games the push pass will keep the games flowing and is a key building block to the introduction of “set plays” as the athletes and coaches progress on to full games. Pushing is also the technique used for scoring in this stage.

Focus on fun games that promote teamwork and exploration of spatial awareness. Holding festivals at the end of season or end of program emphasizes fun and participation.

Mental
Coaches focus on creating self-esteem within participants through reinforcement of individual efforts (self and others) versus outcomes. For example, complimenting the technique used in a pass rather than if it reached its intended target. Emphasize and model sportsmanship and open communication with coach and peers.

Mental capabilities: Experience enjoyment of competition, positive reinforcement of strengths, focus on effort-based goals versus outcome (winning), basic self awareness of thinking and feeling states, basic imagery with little structure (promote creativity), and sportsmanship and ethical play.

Some implications for the coach: Serve as positive role model, teach athletes that mistakes or poor performance are not “bad”, focus on processes (efforts) not on the outcome (winning), and start to develop basic self awareness.

Health
Participants have at least 90 minutes of physical activity every day with 60 minutes of moderate activity and 30 minutes of vigorous. Activities can be in bouts of 5-10 minutes.

Nutrition: Ensure adequate nutrition, but avoid over-eating. Optimize hydration.

Participants sleep as much as desired.

Strength and Flexibility: Promote good movement pattern habits and proper technique. As sport specific training increases, choose alternate activities that emphasize different movements to decrease risk of injury from muscle imbalance. No maximal or near-maximal strength activities to preserve growth plates.

Equipment: Use equipment (ie. Sticks, balls) to match physical size and skill of child

Injury Prevention: Coaches are to teach body awareness and teach proper ‘change of direction’ technique.

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Learning to Train - Getting Hooked

Males Age 9-12; Females Age 8-11

In this stage attention now focuses on building the athlete's foundation of movement skills and begins to expand the repertoire of hockey basics. Participation in multiple physical activities and sport is still promoted with field hockey-specific activities recommended 2-3 times per week.

This is the most important stage for the development of field hockey-specific skills as it is a period of accelerated learning of coordination and fine motor control. It is also a time when children enjoy practicing skills they learn and seeing their own improvement. It is still too early for specialization in field hockey or at the specific positions. Athletes should continue to engage in a broad range of activities and sports for full athletic development.

This stage will feature the window of trainability for skill development for most athletes. Therefore it is important to provide athletes with sufficient time and repetitions to practice and master basic field hockey skills. For best long-term results 75% of the time in field hockey should be spent in practice, with only 25% of the time spent on competition. Applying the skills learned in practice should be the focus of competition, not winning.

Physical
Greater emphasis is placed on learning sport-specific movement through training. Strength training should consist of use of body weight and stability/medicine balls. Endurance and speed should be trained through fun and games that includes introduction to basic training concepts.

Early information about nutrition and hydration is provided.

A major skill learning window (the skill hungry years) takes place during this stage.

Technical
Developing the skills – continued emphasis on refinement of the Five FunStix Principles of Hockey and the expansion of these starts to occur.

Hockey skill introduction: Reverse stick and one-handed dribbling, eliminating, hitting, flicking, sweeping, open receiving, and poke tackling. All skills to be trained in both stationary and dynamic positions. Participants refine basic hockey skills such as open stick dribbling, using the reverse side of the stick, and pushing.

Goalkeeping: The goalkeeper position is introduced with participants focusing on angles, stopping the ball with their feet and pads, and low clears.

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Participants compete in mini and modified games (e.g., 3 vs. 3; 4 vs. 4). Modified implies selecting one or two basic skills to focus on during mini games.

Tactical
Slowly expand from mini games of 3 vs. 3 to 7 vs. 7 with an emphasis on numerical advantage, i.e., 2 vs. 1; 3 vs. 2 and ball possession. Add modified games involving positioning, including a goalkeeper, to introduce basic tactical play, e.g., width and depth, use of space.

Work in a small area with a modified goal and, for example, no “D”. Create awareness of the importance of teamwork and promote constructive communication.

Mental
Concepts of mental preparation begin to be introduced to the athlete. These include relaxation (deep breathing / ratio breathing), long and short term goal-setting, basic focus strategies and thought stopping, imagery (to promote skill development, control, and confidence), self-awareness, basic confidence building-ability to identify strengths, teamwork, and communication skills.

Rules of the Game are expanded and principles of fair play are understood.

Some implications for the coach: Introduce players to a structured mental training (MT) program, introduce the basic mental skills, introduce breathing exercises, and PMR (progressive muscular relaxation)

Health
Activities balance one-sided skills with variety of play activities with opposite movement patterns. A period of rapid growth may begin at the end of this stage for early maturers.

Nutrition: Ensure adequate nutrition, but avoid over-eating. Optimize hydration.

Strength and Flexibility: Introduce plyometric activity through common games (hopscotch, jump rope), shoulder and torso exercises, and free weight technique, but no maximal or near-maximal strength activities to preserve growth plates.

Injury Prevention: Balance one-sided skills with variety of play activities with opposite movement patters and wear properly fitting shoes.

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Training to Train - The Fast and the Furious

Males Age 12-16; Females Age 11-15

Training to Train stage begins when the child's major growth spurt begins (onset of Peak Height Velocity [PHV]). On average, PHV occurs at about age 12 for girls and 14 for boys and lasts between 2-5 years. The major focus of this stage is on the consolidation and implementation of the basic skills of field hockey in a competitive arena.

Competition should involve 1-2 matches per week during a season. A season runs over multiple months with proper breaks to allow for rest and recovery. The athletes may play to win and do their best, but they still need to focus more time on skill training and physical development over competition. This approach is critical to the development of top performers and maintaining activity in the long-term. The training to competition ratio shifts to 60:40.

This stage is the most important in terms of developing the physical capacity of the athlete. The second window of trainability for speed occurs at 11-13 for females and 13-16 for males. There are two sensitive periods for strength training for females; the first occurs immediately after PHV and the second begins with the onset of menarche. For males this starts 12-18 months after PHV.

To properly accommodate all the development that should be completed in this stage, an increase in time commitment in the training schedule will be required. Field hockey-specific training should occur three times per week plus other physical activities in and out of school.

Physical
Develop aerobic endurance with the onset of the growth spurt and introduce speed and anaerobic concepts into training towards the end of the stage. This is the second speed window, 11-13 girls and 13-16 boys. Body weight and core stability work should be expanded upon as well as introducing of use of free weights.

Strength training window for females occurs in two stages: the first occurs immediately after PHV and the second begins with the onset of menarche. For males it starts 12-18 months after PHV. Flexibility training is also emphasized. Expanded information is provided to the athlete and injected throughout training in the areas of recovery and regeneration, hydration and nutrition.

Pre- and –post competition physical strategies are developed. Multiple seasons occur with a built in period of rest between seasons to allow for adequate recovery. Single or double periodization takes place.

Technical
Hockey skill introduction: Reverse stick scoop and low hit passing, advanced scoring techniques such as sweeping, chipping, and tipping, slips and high ball receptions, intercepting, stealing, and penalty corner skills.

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Further development takes place for many passing, receiving, and eliminating skills. Athletes work on the perfection of the FunStix skills.

Goaltenders develop primary skills while being introduced to sliding, left hand, and high clears.

Coaches test the skills through the use of skills in mini and modified games to build confidence. Strengths and weaknesses are identified and addressed while mental skills (focus, confidence) should be built into games and competitions.

Tactical
Basic team and individual tactics are introduced and developed. Elements such as changing pace or direction, off the ball movement, marking, covering, etc. Increase pressure by limiting space in small games. Suggest interchange from zone to man-to-man marking.

Athletes work on consistency of performance under a variety of situations and recognition of game play and decision-making is fostered.

Emphasis on specific positional skills, eg., goalkeepers, defenders, etc.

Mental
Players learn to cope with challenges of competition through education and integration of basic mental skills. Reinforce fair play and advance teamwork.

Mental capacities: PMR (progressive muscular relaxation), basic focus plans and competition strategies, self-talk – aware of thoughts and have method for replacing unproductive self-dialogue, motivation through more advanced goal-setting, use of SMARTER principle – Specific, Measureable, Achievable, Realistic, Time-based, Evaluated, Recorded, confidence by highlighting strengths, and use of imagery.

Start to use pre-competition planning strategies, improved self-awareness, distraction control strategies, competitive attitude, teamwork and communication skills, and reinforce sportsmanship and fair play.

Health
Most participants experience the major growth spurt during this stage. As a result, increased consumption is normal (avg. of 2200 calories for females and 2800 for males). Sufficient balance of nutrient rich foods is important with attention given to calcium, iron, and optimized hydration.

Sleep needs increase with rapid growth

Strength and Flexibility: Introduce free weight technique, but no maximal or near-maximal strength activities to preserve growth plates. Flexibility should be emphasized during the growth spurt.

Injury Prevention: Improved aerobic fitness decreases risk of injury from fatigue and enhances recovery. Introduce injury prevention programs for shoulder and low back because risk of repetitive use injury increases, provide at least 6-8 weeks of preseason conditioning prior to intense sport participation, modify training programs (ie., correct muscle flexibility and strength imbalance, decrease volume and intensity of training/during periods of rapid growth), and ensure that all injuries are fully rehabilitated.

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Training to Compete - Tackling the Top

Ages 16-19 +/- yrs

In the Training to Compete stage athletes now have the core skills to strive within a competitive environment. The focus now shifts to consistency in execution of these skills and training under pressure. Athletes begin to specialize in field hockey with sport-specific training sessions 9-12 times per week – including technical, tactical, and physiological components.

The purpose of this stage is to begin to prepare the elite athlete for high performance competition in the clubs, provincial programs, universities, regional centres, and national teams. Many athletes will choose to continue participating in field hockey at a more recreational level thereby entering the Hockey for Life stage. For the high performance athletes, training begins to occur year-round.

The Training to Competition ratio shifts to 40:60 % and competition includes both competition-specific training and actual competitions. Competition should include 1-2 times per week recreationally with two or more times per week focusing on the introduction to elite domestic and international competition within a season of multiple months with adequate periods of rest and recovery in between. Utilize single, double, and triple periodization as the optimal framework of preparation.

Physical
All systems are fully trainable towards the end of the stage. Testing should determine the priorities of training emphases such as aerobic and anaerobic endurance, speed development, strength training, footwork and agility, and positional considerations for fitness and strength training.

Coaches refine routine practices of recovery, regeneration, and nutritional needs. Injury care and prevention are emphasized through a strong core and flexibility program pre-and-post workout / competition.

Technical
Advanced ball and stick skills are performed at speed. This is the critical stage for the development of the High Performance athlete. Specific skills are integrated and high proficiency level for both attacking and defending is expected. Development of consistency under pressure in a variety of situations. Mini-games are important with emphasis on using specific skills with the element of competition.

Athletes have perfected FunStix skills and working on the refinement or perfection of: Lift dribbling, eliminating skills, hitting, flicks, one touch passing, scoops, advanced scoring skills, deflections, steals, shave tackles, and penalty corner skills.

Goaltenders have perfected measuring angles and begin to work towards perfection of feet/pad saves and low

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clears. Refinement commences on sliding, hand/stick saves, and high clears.

Tactical
Decision-making in game play (eg. focus on ability to read the game) is important in this stage. Athletes focus on the use of space, creating numerical advantage, transition of play in attack and defense, creating or preventing goal scoring opportunities, and defensive and offensive positioning with reference to ball speed and pressure.

Use of press and relevant positioning.

Use and awareness of roles and responsibilities in half court tactical play.

Tactical manoeuvres aimed at very quickly shutting down opposition attacks or counteracting opposition. Not permitting space by close marking. Creating space by off the ball movements.

Individualized specialization of set play pieces and duties on the pitch regardless of position.

Implementing the game plan and dictating the pace of the game.

Mental
Develop competitive attitude and mental skills needed to manage anxiety and perform consistently with an emphasis on personal accountability for performance excellence. Promote on and off-field strategies to maximize teamwork.

Mental capacities: Commitment to training at high intensity, ability to manage activation/arousal level, goal-setting, self-awareness (high level of awareness of factors that maximize and minimize performance), knowledge and use of planning, critical evaluation of training and competition, competitors mindset (confidence, focused, determined), personal responsibility and involvement in decision making, sport-life-balance skills, and on and off-field strategies to maximize teamwork.

Health
It should be considered that some athletes may gain height until 20-21 years old.

Nutrition: Maintain balance of nutrient rich foods, with attention given to calcium and iron, ensure caloric intake meets needs of activity, and hydration.

Strength and Flexibility: Ensure strength and flexibility meets the requirements of the sport, and continue to decrease muscle strength and flexibility imbalances.

Injury Prevention: Continue specific injury prevention programs to decrease risk of repetitive use injury, including core stability, continue at least 6-8 weeks of preseason conditioning prior to intense sport participation, introduce cross training activities for 2-3 aerobic training sessions per week to decrease overload to any one group of tissues, introduce the concept of Integrated Support Team (IST), and ensure all injuries are fully rehabilitated.

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Training to Win - Push to the Podium

Chronological Age: 19 +/- yrs and beyond

Training to Win is the final stage of preparation. Athletes now have a full complement of skills and abilities to achieve success. All facets of training have been developed and are now exercised to maximum capacity. Responsibility now falls on an athlete not only for their own individual performance but that of the team as well. Consistent mastery and execution in all areas of performance must occur.

The athlete's physical, technical, tactical, mental, and ancillary capacities should now be firmly established. The focus of training is on refining all skills and abilities and continuing to zero in on the optimization of performance to peak for major competitions. World-class athletes require world-class training methods, equipment, and facilities that meet the demands of international field hockey.

The competition ratio shifts to 20:80 with the competition percentage including competition-specific training activities. Domestic competition occurs once or twice per week over a multiple month season with built in rest periods while international competition sees multiple games over the week during intense periods followed by rest. The athlete should have total dedication to field hockey with sessions 9-15 times per week incorporating all facets of physical and mental training.

Physical
All systems are fully trainable. Testing determines the priorities of training emphasis such as individual fitness for maintenance and improvement, high level of work rate encouraged along with institution of proper lengths of recovery, commitment to rigorous training, and performance (result) oriented goals.

Technical
Game-related technical repetition under pressure in important for this stage. Players are normally identified for provincial, junior, or senior squad.

This stage is focused on perfection of skills although elements of advanced skills may still be developed such as uses of skills for specific positions or tactical reasons (when, where and how).

Hit, sweep or push pass with reference to distance and pressure.

Specific positional and set play specialization is established and mastered.

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Tactical
Athletes have a high degree of decision-making, leadership, and game analysis. They possess advanced use of skills for tactical play such as cross-field scoops to break from a press and also set the stage for a quick attack.

Counter attack by use of good position for absorbing the attack and then launching an attack. Switch off marking and covering, communication with players for changes in tactics and ability to adjust game plan, adapt strategies to suit changing demands. They also understand the correct method of entry into the circle (eg. direct or baseline).

Mental
Competitive attitude and will to win is solidified. Focus on individualized mental strategies used to prepare and perform consistently under a variety of competitive situations. An increased emphasis is on personal responsibility and player involvement in decision-making. Athletes utilize on and off-field strategies to maximize teamwork.

Mental capacities: Individualized mental training program and consistent use and application of mental skills, regular monitoring, evaluating, and adjusting of goals (short and long-term – continue to set both process and outcome goals). There is a high level of awareness of Ideal Performance State, and a competitor's mindset (confidence, focused, determined, goal-driven).

Health
It should be considered that some athletes may gain height until 20-21 years old.

Nutrition: Maintain balance of nutrient rich foods, with attention given to calcium and iron, ensure caloric intake meets needs of activity, and hydration.

Strength and Flexibility: Continue to ensure strength and flexibility meets the requirements of the sport, and continue to decrease muscle strength and flexibility imbalances.

Injury Prevention: Continue specific injury prevention programs to decrease risk of repetitive use injury, including core stability, continue cross training activities including 2-3 aerobic training sessions per week to decrease overload to any one group of tissues, integrate use of Integrated Support Team (IST), and ensure all injuries are fully rehabilitated.

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Hockey for Life

Any age

This is a crucial stage to the ongoing success of field hockey in Canada. This stage allows the sport to be played by tens of thousands of recreational athletes across the country. In this stage the passion for the game of hockey continues with emphasis on the leisure and social aspects of the game. By encouraging inclusion, the game can remain a viable option for full participation by all in a fun and inviting participatory environment.

Young athletes can enter this stage at essentially any age. If children have been correctly introduced to activity and sport through Active Start, FunStix, and Learning to Train programs, they will have the necessary motor skills and confidence to remain active for life in field hockey. Not only can an athlete enjoy playing field hockey for a lifetime, but she or he can also become involved in the sport as a coach, official, administrator, or volunteer. These individuals should be encouraged to take up and get involved in new sports as well.

Competition can be as little as once per week and can take place in clubs, university alumni games, community leagues, and relative age-group competitions. Athletes should work to try and maintain the basic field hockey skills learned in their development career.

Physical
Maintain aerobic fitness by walking or jogging at least 3-4 times a week for a minimum of 30 minutes each.

Maintain strength through resistance conditioning exercises.

Maintain flexibility – stretching, yoga or pilates.

Technical
Maintaining existing skills and learning new ones. Engaging in new aspects of the game in a non-playing capacity through volunteering of time, e.g., coaching, umpiring and management.

Provide mentorship and development opportunities to young coaches and athletes to enable the development of field hockey and participate in community clubs.

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Tactical
Exchange varied tactical knowledge for incorporation into game situations.

Provide knowledge, ideas and experience to promote the game.

Incorporate the experience for enjoyment and growth of the sport.

Mental
Remain motivated to play and desire to learn and improve skills.

Develop and maintain social contact, but most importantly, HAVE FUN!

Health
Overall maintenance of general health through active lifestyle. Perform at least 30 minutes of activity per day (moderate and vigorous) and return to a variety of activities.

Nutrition: Caloric needs decrease, maintain balanced diet, low in fats, low in salt, high in whole grains and complex carbohydrates, maintain calcium levels, ensure adequate nutrition without avoid over-eating, and continue optimizing hydration.

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Para Field Hockey

Athletes with a disability (AWADs) are first and foremost athletes, and for this reason, virtually everything in the able-bodied LTHD model is applicable. The AWAD development stream is, therefore, only concerned with additional factors that need to be considered when working with these athletes.

Para Field Hockey, or field hockey for athletes with a disability, is a newly evolving component within field hockey. The athlete development pathway is based on the Canadian Sport for Life model (No Accidental Champions), which provides development considerations for athletes with a disability.

The game will consist of both an Outdoor Integrated Game and Indoor Para-Game (Para-athlete focused, with reverse integration of able-bodied athletes invited to participate).

Key Considerations

The first element is based on the fundamental principles of awareness and the concepts pertaining to first contact/recruitment.

The second consideration involves the coach being aware of whether the athlete has had previous experience in sport activity, be it a recreational or competitive level, and whether this involvement was from a congenital disability background or if the individual has a newly acquired disability. A great deal of consideration must not be given to chronological age of development, but rather age of experience, relative to the individual's level of activity and experience both pre and post-acquisition of the disability.

The third element that follows from this is the provision of options relative to the individual choosing to pursue a recreation stream or a competition stream within the sport.

These three concepts are the foundation through which Para Field Hockey will develop in Canada, and ultimately will ensure the growth of the para-game within Canada and on the international stage.

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Roles and Responsibilities

The successful implementation of LTHD requires clear stakeholder roles and responsibilities. Without clear definitions, there is potential for confusion, conflict and inaction between stakeholders on implementation initiatives. Definition of roles ensures accountability for each of the Strategic Initiatives, and there should be discussion and joint agreement on precisely who is responsible for completing each task.

The system of leadership and program delivery of Canadian field hockey is complex. The chart below outlines an example of the shared leadership in many areas and the collaborative model of programming.

Stage	FHC		PSO		Local Clubs/Schools	
	Leadership	Program Delivery	Leadership	Program Delivery	Leadership	Program Delivery
Active for Life	x				x	x
Training to Win	x	x				
Training to Compete	x	x	x	x		x
Training to Train	x	x	x	x	x	x
Learning to Train	x		x	x	x	x
FunStix	x		x		x	x
Active Start	x				x	x

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LTHD Implementation

It is evident LTHD has significant implications for every facet of the Canadian sports system relating to field hockey. Implementing LTHD requires changes to every level of field hockey governance in Canada in a concerted effort to align our systems of delivery, educate stakeholders, and define roles and responsibilities.

Leagues will need to change game formats for some age levels, coaches will need to adjust objectives and philosophies, administrators will need to demonstrate wider accountability in their roles and programs will need to be driven with greater efficiency while maintaining or widening its scope.

We must come to a mutual understanding of “what great looks like” in every detail of our sport’s delivery. From tactical and technical skill emphasis in each unique stage of an athlete’s development, to best practices in coach and umpire education, administrative support, success recognition, and governance structures. Implementation of LTHD is a challenge every member of the field hockey community is invited to join. It must be approached with patience, understanding, resolve, and with a clear sight on the end goal of a strengthened Canadian field hockey system.

In leading our organizational direction for field hockey development, FHC needs to adopt longer term principles to guide national-level sport development decisions. These principles will provide direction to the initiatives undertaken in LTHD implementation. Until this time we can start with the following four priority areas, which may be refined over time by the FHC Board and stakeholders.

1. Participation
2. High Performance Support
3. Competitive Opportunity
4. Technical Leadership

LTAD Strategic Initiatives

In developing the LTHD, five key areas were identified that require immediate attention for the development of Canadian Field Hockey – player development, coaching, leadership, competition, and facilities. The identification of challenges may not apply to all regions of our country, but it is in indicative of some regions or stakeholders that require the most development. Given the size of our country a one size fits all approach cannot emerge. However a clear understanding of what our current status is allows us to create a common framework for advancement.

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Player Development

Current Challenges

- Our approach to developing field hockey players is not consistent across the country, and at times it even contravenes the mental, emotional, and physical needs of players.
- Basic movement and sports skills are not emphasized during childhood.
- Fun is not always included in the training environment.
- Programs place multiple demands on players.
- Major differences in talent identification process at all levels across the country (e.g. what age do we start?).
- Recreational programs are inconsistent in quality.
- Not all Provinces provide playing opportunities for recreational and elite play.
- Programs for players with disabilities and all ages are not consistently offered.
- Contact time between player and coach is often too brief (short playing seasons).
- Decision-making training is not emphasized.
- Clubs and provincial associations do not always coordinate programs; consequently athletes can be on one program ten or more months a year.
- Knowledge of training is inconsistent (windows of trainability are not understood).
- Process and criteria for identifying elite players is not nationally defined.
- Limited age groups and regions have access to Provincial and regional camps.
- Male training programs are superimposed on females.
- Differences between male and female athlete development are not addressed.
- Training is delivered according to chronological age, not biological age (maturation level).
- Player access to high-level training facilities is limited (travel and accommodation costs).
- No Canadian National league exists, which is often seen as an impediment to excellence in Canada.
- Connections with elite leagues are not adequately developed or promoted (e.g. NCAA, CIS, City Leagues).
- Elite players have few elite playing options.

LTHD Vision

- A consistent training and competition model that is based on sport science and proven experience.
- Athlete development programs, practices, and decision making are guided by a clear organizational philosophy and pathway.
- Guidelines which define the balance between training and competition at the different stages of development and are implemented in programs at all levels.
- Talent Development Programs are in place at all stages in partnership with all levels of field hockey community.
- Centres of Excellence and Academies identify and train Junior and Future talent.

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- Competition structures are fully aligned with the Talent Development Program.
- Nationally identified athletes experience consistent and formalized training both domestic and overseas.
- Structured links (partnerships established) between domestic & international clubs, universities (Canadian & US) and National Team Administration.
- Grassroots participation is increased through quality programs that involve children, schools, clubs, leagues, and players with disabilities.
- Target skills are defined for each age and stage of development.
- Programs are athlete-centred.
- Measures for injury prevention are understood by coaches and players.
- Injuries to players are significantly reduced. Particularly over-use injuries, sport hernia, and knee damage.
- Medical experts (doctors, physiotherapists, sport psychologists) are retained to support the athletes and coaches.
- Centres of Excellence and high performance structure provides training, education, competition, and advice to Developing High Performance players prior to and during the early stages of their international careers.
- Models of best practice are established for the identification and representation of talented players, and they are implemented in partnership with relevant organizations.
- “Second chance” player identification process is established (tracking system).
- Athletes are advised and monitored in career development and education.
- Competitiveness and standing in world rankings are improved (e.g. women and men in Top 8).
- Canadian, European, and World trends are constantly monitored within field hockey in particular and within sport in general.
- Athlete recruitment policies are extended on a global basis, promoting a desire to play for Canada.
- Universities and Colleges are active partners in athlete research and facility access.
- Universities and colleges recognize their role in “Hockey for Life” stage.
- Players are retained from adolescence through to the adult game.
- Retired players remain involved in field hockey as players, coaches, administrators, and umpires.
- Partnerships are established with top clubs in Canada.

Implementation Plan

- Establish quality field hockey programs where players are matched to their age and stage of development.
- Stipulate no game competition before the age of 6.
- Encourage parents to play with their children at home.
- Educate parents, coaches, and administrators in LTHD principles.
- Establish an accepted high performance development plan between all stakeholders (i.e. clubs, high schools, provincial and national association).
- Establish a structured player identification system and a follow-up tracking system at all levels (i.e. clubs, universities, provinces, national).
- Define technical and tactical terminology and standards to the provinces.
- Create an emerging talent program that links with all levels of the game – in particular with junior & senior clubs, universities, provinces and National Team.
- Align the current Domestic Championship structure for age group and seniors with LTHD values
- Establish Centres of Excellence (COEs).
- Increase National Squad training opportunities at the COEs.
- Led by FHC, create partnerships with International Clubs so that a few players can train overseas. This

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number should be limited per year.

- Identify talented Canadian players living in other countries and integrate them into our programs.
- Establish a system where NCAA & CIS players feed into the National Squad training and competition schedules.
- Create guidelines to assess player training volume and modify appropriately.
- Establish periodized training, competition, and recovery for national team players.
- Ensure a good liaison with the “significant others” in the players environment (Parents, club, coach).
- Increase feedback to players or parents/guardians – “town Hall” meetings.

Coaching

Current Challenges

- Access to quality coaching across Canada varies.
- Coach training requirements are not defined for different stages of athlete development.
- Impact of current coach training programs is not known and offered sporadically in many regions.
- Not enough paid coaching opportunities.
- Parent coaches are not generally supported with training, mentoring and resources.
- Many clubs lack a professional coaching structure, including a Head Coach.
- No standard training program exists for Club Head Coach or Technical Director.
- Many coaches promote over-specialization prematurely by limiting players to specific positions to win.
- Performance feedback to athletes varies and can be inconsistent.
- Coaching plans are not reviewed annually.
- Not all coaches utilize or understand sensitive periods of accelerated player “trainability.”
- Many coaches do not understand the importance of periodization in program design.
- Coaching education covers issues of growth, development, and maturation only marginally.
- Sport science, sport medicine and sport-specific technical-tactical activities are not integrated.
- Few specialist coaches exist for advanced stages of athlete development.
- The best coaches are with the best athletes.
- Coaches require more professional development opportunities, not simply certification.

LTHD Vision

- More accredited and qualified coaches exist at all levels with competencies defined by LTHD stage.
- Parent-coaches and physical education teachers are applying LTHD principles.
- Coaching education courses are reviewed and re-designed where necessary.
- National Team coaching programs and standards are integrated with NCCP.
- The status of coaching qualification is raised and opportunities for continuous professional development are provided.
- Clubs with significant membership have a professional Club Head Coach/Technical Director.
- Qualifications are established and followed for club Head Coach and Technical Director.
- All coach education and resources are offered regularly in both official languages.
- Coaches have opportunities to improve formally and be recognized at all levels.
- Coaches have access to coaching resources from the National Team.
- Coaches are given opportunities for additional experiential education, such as seminars and elite guest coach demonstrations.

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- Formal mentoring programs exist at national, provincial, and regional levels.
- Current and retired players are formally recruited as coaches and mentors.
- Parent coaches receive orientation by Technical Director / Certified coach in every club at the beginning of season.
- Volunteer coaches can access expertise within the club throughout the season.
- Novice club coaches have opportunities to gain field hockey competition experience.
- Club Head Coaches have coaching competencies, administrative competencies (management, computer, technologies, and communication), leadership competencies and training competencies.
- Each Provincial team has an accredited and compensated coach.
- Teachers and coaches delivering field hockey programs in schools are trained to introduce and train field hockey skills, both in physical education and during extra-curricular programs.
- Student field hockey players are trained to be community coaches for mini and junior field hockey.
- Seminars are presented in western Canada, central Canada and the Maritimes.
- Regional, Provincial, and Territorial seminars are coordinated so that coaches have more than one opportunity to attend.

Implementation

- Align LTHD principles and pathway with NCCP coach education process and outcomes.
- Train and mentor more coaches to work with player development at the junior level.
- Establish a coaching standard for club, university, provincial and national coaches.
- Increase the quality and quantity of coaches, umpires, and administrators through an extensive program of education, training, and resources at local, regional and national levels.
- Establish formal coach mentoring programs at National, Provincial, and regional levels (can be face to face, e-mentoring, telephone)
- Develop more professional opportunities for coaches.
- Provide novice club coaches with opportunities for field hockey competition experience.
- Provide training for parent coaches in field hockey.
- Develop coaching resources for field hockey – DVD with rules and games.
- Raise the standards of expertise in the National Team Technical staff.
- Expand National Team coaching weekend events for player and coach development opportunities.
- Enhance interaction and communication between National Team staff and Clubs and FHC staff.
- National convention of field hockey coaches is established.
- Coaching events schedule is online and updated regularly.

	Active Start	FunStix	Learning to Train	Training to Train	Training to Compete	Training to Win	Hockey for Life
Males	0-U6	6-10	9-12	12-16	16-19	19+/- & beyond	All Ages
Females	0-U6	6-10	8-11	11-15	16-19	19+/- & beyond	All Ages

Leadership

Current Challenges

- Club organization is inconsistent and not defined across Canada. Some “teams” are identified as clubs, with no policies or constitution and are not registered under the Societies Act.
- Clubs are not always structured or staffed for greater accountability and efficiency.
- Administrative culture is not consistently accountable.
- Roles & responsibilities of leaders and officials are frequently not defined.
- Accountability is very weak or non-existent.
- Roles often overlap and conflicts result between different levels of organization.
- Coaches and/or officials are not always involved in strategic decision making.
- Common terminology does not exist for field hockey development.
- Lack of technical support for the National Team programs as well as general membership.
- Many clubs do not have a Technical Director or certified Head Coach.
- Role and qualifications of the Club Technical Director are not defined.
- Grassroots approach to field hockey development is not defined.
- Coaches and officials are not involved enough in grassroots development.
- Field hockey is not marketed and cross-promoted.
- Communication between different stakeholders is inconsistent.
- Parents and coaches are not educated about long-term athlete development (nutrition, regeneration, maturation and psycho-social development, etc.).
- Resources are often focused on a small segment of players and programs.
- Opportunities for coach certification and education are not consistently available.
- Organizations lack commitment to player and organizational development
- Lifelong playing opportunities are not consistently available.
- More volunteers are needed to staff and run programs.
- Clubs lack “cradle to grave” culture where members remain involved for life.
- Officials (umpires & technical officials) are not always provided adequate training and mentoring to develop

LTHD Vision

- Players and coaches have the support of solid administrative frameworks to deliver programs that maximize player participation, development, and success.
- Finances are available for clubs to pay for a chief Administrator (e.g. registration, scheduling).
- FHC Board of Directors supports technical representation.
- Governance structure ensures technical decisions are given necessary priority.
- Elected Board positions have clear criteria and defined terms and deliverables.

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- Structure and policies are built on athlete-centred principles.
- Best practices for organizations exist at all levels.
- Organizations have positive relationships with communities, service organizations, funding organizations, and school boards.
- Technical experts are not absorbed in administrative duties.
- PSO executives support and recognize the expertise of their technical staff.
- FHC Board has technical representation with voting power.
- FHC Technical Director is supported by a Technical Advisory Committee including the National coaches and Program Manager.
- PSO Boards have technical representation with voting power.
- Advocates and lobbyists for field hockey are active at federal and provincial levels.
- Federal government recognizes field hockey's contribution to sport and wellness in Canada.
- Organized fan groups are more active and numerous.
- Canadian star players are promoted in media and given a public profile.
- Canadian field hockey successes are celebrated and promoted in media.
- Games are televised - club championships, CIS, National Championships & National Team.
- Media has a strong positive relationship with field hockey organizations and the game.
- Technical staff and administrators at all levels have clear roles and responsibilities for which they are accountable.
- National field hockey day is established and celebrated.
- Members have access to technical resources.
- Recognition is awarded to clubs which meet positive standards for player development, coaching and administration.
- FHC services are increased to grassroots through PSOs.
- Corporate groups support funding for grassroots field hockey, coach education, LTAD, and player excellence.
- Umpires who travel internationally present findings and "lessons learned" in reports and seminars.

Implementation

- Create a unified structure that links school, club, district, provincial and national programs.
- Encourage non registered field hockey groups to become part of their local/provincial/Canadian associations by selling them the benefits of membership.
- Ensure that every athlete / coach / staff with the National or Provincial program is a registered member of FHC.
- Establish clear pathways for all players, coaches, umpires and administrators within the game.
- Establish high quality Centres of Excellence in each region.
- Establish a fully reorganized, resourced and professionally run FHC Technical Department, with a Technical Director.
- Encourage clubs to increase their financing to pay for a chief Administrator (e.g. registration, scheduling).
- Give priority to technical considerations within the governing structures.
- Establish clear criteria for elected board positions and define terms.
- Identify athlete-centered principles to define structure and policy.
- Identify and implement best practices for organizations at all levels.
- Promote positive relationships between field hockey organizations and communities, service organizations, funding organizations, and school boards.

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LEADERSHIP

- Develop dedicated administrative staff so technical experts are not absorbed in administrative duties.
- Support and recognize the expertise of technical staff at all levels (club, regional, provincial, national).
- Establish technical representation with voting powers on FHC and Provincial Boards.
- Establish an Advisory Committee for the FHC Technical Director.
- Promote field hockey advocacy and political lobbying at federal and provincial levels.
- Establish a Canadian field hockey identity.
- Establish Provincial development plans that fit the National vision.
- Promote the National vision to regions and clubs.
- Promote organized support groups, such as National Squad alumni.
- Promote Canadian star players to media.
- Lobby media to televise games at University, Club, National Championships and National Team levels.
- Lobby media to report on field hockey regularly – newspaper, TV, radio and Internet.
- Establish a National Field Hockey Day.
- Establish FHC and PSO awards to recognize clubs which meet positive standards for increase in membership, player development, coaching, and administration.
- Increase FHC services to grassroots through PSOs.
- Solicit funding from corporate groups for grass roots field hockey, coach education, LTHD, and player excellence.
- Increase sources of funding to increase number of qualified staff.
- Recognize field hockey's role in the health of our nation through partnerships and programs with communities and schools as well as health sectors, resulting in new partners and initiatives for the game and wellness of Canadians.

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Competition

Current Challenges

- Current game formats, leagues, and tournaments in Canada are often unsuitable for the players and regions they serve.
- Competition structure is not integrated or rationalized at all levels across Canada.
- No periodization guidelines exist for player training, competition, and recovery.
- Varying playing surfaces, climates and extreme weather hamper training and playing outdoor field hockey
- Length of season is inappropriate (e.g. BC is too long, rest of Canada is too short).
- Adult game structure is imposed on children (e.g. 11v11 on a full field).
- Many programs do not distinguish between recreational and elite players.
- Seasons overlap between club, school, and select teams, resulting in over-competition and inconsistent coaching.
- Seasons overlap with other sports, resulting in over-competition.
- National team program exposes a relative few players to international competition.
- Canadian National Team players encounter timing conflicts when playing university field hockey or club hockey (e.g. NCAA, CIS, domestic club).
- Some players are committed to international clubs at the expense of National Team Program or Domestic competition.

LTHD Vision

- Existing competition model is reviewed and the recommendations implemented.
- Competition structure is defined at each stage, including training-competition ratios, periodization, season length, standings, playoffs, cup championships, and player statistics.
- Guidelines are established for the incidence of competition (e.g. tournaments).
- In the lower stages competition is used as a tool for player development and not its purpose.
- Appropriate levels of competition are defined for each stage.
- International normative data is collected.
- Appropriate age groupings are defined for group training.
- Access to competition is improved, minimizing travel and costs.
- Overlap between field hockey programs is reduced (i.e. schools, clubs, regional, Provincial and National teams).
- Competition guidelines address unique geographical demands of different regions.
- Ongoing campaign promotes positive and supportive field hockey culture among parents and players.
- Year-round facilities (Indoor / outdoor) are available for U14 programs and above.
- Quality umpires work at all levels, communicating standards of conduct to players, coaches, and parents.

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- More players participating in regional, provincial, and international competitions at the Training to Train and Training to Compete stages.
- Larger player pool exists for National teams.
- National scheduling plan is established to accommodate competitions.
- Consistent competition structure is established for different age groups across Canada.

Implementation

- Revise the competition structure to match the needs of players at each developmental stage.
- Technical experts design and lead Canadian competition system.
- Eliminate adult game formats in children's programs.
- Establish recommended game formats for all development stages
- Refine and expand leagues across Canada
- Create a National Club Championship – schedule when University teams can play
- Establish annual Regional Championships
- Establish appropriate national championship structures both practically appropriate and in line with LTHD.
- Implement appropriate recognition policy (ie. Tournament XI, trophies etc.)
- National Talent identification takes place at appropriate events
- Create opportunity for both indoor and outdoor competitions where demand dictates.
- Define plans for periodized training, competition, and recovery at all levels.
- Differentiate between recreation players and performance players in programming.
- Establish programs based on biological age (physical maturation) rather than chronological age.
- Try and reduce overlapping seasons between schools, clubs, and district select teams.
- Work with other sports to reduce overlapping seasons.
- Clearly define the role of the different competition structures (University, etc…).
- Develop a guide for player development during games for every stage of development.
- Create an environment to ensure sustained success for National teams in international competition.
- Host international competitions annually.

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Facilities

Current Challenges

- Access to programs at all ages is sometimes limited by availability of facilities.
- Facility scheduling does not always allocate time adequately.
- There is an increasing supply of artificial field turf facilities across Canada, but access to high-quality facilities remains limited for many small and remote communities (e.g. field turf, indoor, regular fields).
- Long-term strategy for infrastructure development does not exist and facility needs are not prioritized.
- Sponsorship and funding is significantly less per capita than other field hockey countries.
- No field hockey venues meeting international criteria currently exist.
- Cost prevents many youth programs from accessing quality facilities.
- Private sector partnerships for facilities development are under-developed

LTHD Vision

- More municipal playing facilities are available for community field hockey programs.
- Existing municipal facilities are upgraded.
- More facilities are owned by field hockey entities.
- More field hockey-specific stadiums exist.
- More artificial turf fields and facilities developed (indoor and outdoor), as these are well-suited to the challenges of the Canadian climate.
- More public-private partnerships exist to support investment in field hockey-owned facilities.
- More partnerships between FHC and universities & colleges exist for development and use of facilities.

Implementation

- Develop agreements between FHC, provinces, clubs, and governments at national, provincial, and municipal levels for facility development, including indoor considerations.
- Identify a “preferred supplier” for the playing surface.
- Use facilities appropriately to create correct game experience (e.g. gym training).
- Create marketing strategies to offset operational costs.
- Generate relationships with municipalities to develop indoor and outdoor facilities.
- Create partnerships with communities, universities, with other sports, etc.
- Lobby government and corporate groups to create more field hockey-specific stadia.

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Appendix - Skill Progression Pathway

The aim of the Skill Progression Pathway is to provide guidelines for the introduction and training of the major technical and tactical skills used within the game today. It is meant to serve as a supplemental resource to the LTHD pathway.

Variations of the skills included in this resource exist and can be coached once the basic version has been developed appropriately. To ensure simplicity and efficiency, variations of the skills involving a change in context (e.g. skill execution while moving in different directions, or variations in ball speed) are not dealt with here. Over time, FHC will produce specific metrics to measure skill performance within each stage in order to provide coaches and athletes with defined outcomes and expectations of a field hockey athlete.

Fundamental field hockey skills are introduced prior to the onset of puberty as this represents a period of accelerated adaptation to skill development. The introduction of skills that do not represent significantly new motor learning but contain a risk of safety in execution should only be introduced to experienced athletes able to accurately judge safety.

Skills may be progressed by modifying variables during skill execution such as:

- Space (bigger / smaller)
- Time (faster / slower)
- Competition (add defenders / attackers)
- Number of decisions (increase of decrease number of passing options)

The skill progression pathway is separated into five linear periods:

Acquisition: The early stage of learning where the athlete becomes capable of coordinating key components of movements and executing them in the correct order, thus performing a rough form of the skill. The movements are not well synchronized or under control, and they lack rhythm and flow. The execution is inconsistent and lacks precision. The athlete has to think about what he or she is doing while performing the skill. Both form and performance tend to deteriorate markedly when the athlete tried to execute movements quickly or is under pressure, as may be the case in a competitive situation.

Consolidation: The athlete can execute the movements or the skill with correct form. Movement control, synchronization, and rhythm are good when performing the skill under easy and stable conditions. The movements can be repeated consistently and with precision under these conditions. Some elements of performance can be maintained when the athlete is under pressure, conditions change, or demands increase, but performance remains inconsistent. The athlete begins to develop a more personal style.

Refinement: The athlete can execute the movements in a way that is very close to the ideal in terms of form and speed. The performance is very consistent and precision is high, even under very demanding conditions and in situations that are both complex and varied. Only minor fine-tuning may be necessary to achieve optimal execution, and a fairly personal style is established. All components of the movement have been automated, which enables the athlete to focus on the environment while performing and to make rapid adjustments as necessary. The athlete can reflect critically on his or her performance to make corrections.

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APPENDIX - SKILL PROGRESSION PATHWAY

Perfection: This stage is achieved only by the best athletes. The movements can be performed according to the ideal, and the athlete has developed a personal style that is efficient. Personal interpretation of movements or personal movements can be combined into unique patterns in response to specific competitive situations.

Maintenance: The athlete has reached a plateau of a specific skill after any one of the previous four periods. Athletes are able to preserve consistency in the execution of the skill on an ongoing basis.

Please visit www.lthd.fieldhockey.ca for the most up to date progression pathway documentation.

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Glossary of Terms

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

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

Ancillary capacities:
The knowledge and experience base of an athlete and includes warm-up and cool-down procedures, stretching, nutrition, hydration, rest, recovery, restoration, regeneration, metal preparation, and taper and peak.

Childhood:
Spans the end of infancy — the first birthday — to the start of adolescence and is characterized by relatively steady progress in growth and maturation and rapid progress in neuromuscular or motor development. It is often divided into early childhood, which includes pre-school children aged 1 to 5 years, and late childhood, which includes elementary school-age children, aged 6 through to the onset of adolescence.

Chronological age:
“The number of years and days elapsed since birth.” Growth, development, and maturation operate in a time framework; that is, the child’s chronological age. Children of the same chronological age can differ by several years in their level of biological maturation.

Sensitive periods of development:
A point in the development of a specific behaviour when experience or training has an optimal effect on development. The same experience, introduced at an earlier or later time, has no effect on or retards later skill acquisition.

Development:
“The interrelationship between growth and maturation in relation to the passage of time. The concept of development also includes the social, emotional, intellectual, and motor realms of the child.” The terms “growth” and “maturation” are often used together and sometimes synonymously. However, each refers to specific biological activities. The integrated nature of growth and maturation is achieved by the interaction of genes, hormones, nutrients, and the physical and psychosocial environments in which the individual lives. This complex interaction regulates the child’s growth, neuromuscular maturation, sexual maturation, and general physical

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metamorphosis during the first 2 decades of life.

Growth:
Observable, step-by-step, measurable changes in body size such as height, weight, and percentage of body fat.

Maturation:
Qualitative system changes, both structural and functional in nature, in the organism's progress toward maturity; for example, the change of cartilage to bone in the skeleton.

Open stick:
Also called forehand. The right hand side of the stick and the most dominant side to play the ball on.

Peak height velocity (PHV):
Maximum rate of growth in stature during growth spurt. The age of maximum velocity of growth is called the age at PHV. Peak strength velocity (PSV) is the maximum rate of increase in strength during growth spurt. The age of maximum increase in strength is called the age at PSV.

Physical literacy:
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, anticipates movement needs or possibilities and responds appropriately with intelligence and imagination" (Whitehead, 2001)

Puberty:
The point at which an individual is sexually mature and able to reproduce.

Readiness:
Child's level of growth, maturity, and development that enables him/her to perform tasks and meet demands through training and competition. Readiness and critical periods of trainability during growth and development of young athletes are also referred to as the correct time for the programming of certain stimuli to achieve optimum adaptation with regard to motor skills, muscular and/or aerobic power.

Trainability:
The genetic endowment of athletes as they respond individually to specific stimuli and adapt to it accordingly.

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About Field Hockey Canada

Field Hockey Canada (FHC), incorporated in 1991, is a Canadian sport federation responsible, with their Provincial partners, for the development and growth of field hockey in Canada.

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