

Archery Canada  
Long-Term Archer Development Model



**Shoot for Fun  
Shoot to Excel  
Shoot for Life**

## Acknowledgements

Archery Canada gratefully acknowledges the work of the following who contributed to this document:

Ghislain Arsenault, Gaston Bibeau, Ken Cameron, Rick Comeau, Diane Culver (Coaching Association of Canada), Marthe Cusson, Alec Denys, Crispin Duenas, Greg Durward, Jordan Eastman, Alain Gravel, Chloe Greenhalgh, Jude Hooley, Allen Jenskey, Paul Jurbala (consultant), Maciej Karlowski, Robert Lakeman, Susan Lemke, Don Lohnes, Alana MacDonald, Hugh MacDonald, Joan McDonald, Bob McIntyre, Kathleen Millar, Don Munroe, Roger Murray, Arthur Nault, Ron Ostermeier, Tom Paukovic, Shawn Riggs, Bruce Savage, Trina Snooks, Bryan Stafford, Bob Tataryn, Richard Way (consultant), Allan R. Wills, Ed Wilson.

This document prepared by Paul Jurbala communityactive  
Designed by: McAllister Marketing

We acknowledge the financial support of the Government of Canada through Sport Canada, a branch of the Department of Canadian Heritage.

The logo for Canada, featuring the word "Canada" in a serif font with a small Canadian flag icon above the letter "a".

Copyright Federation of Canadian Archers Inc. (Archery Canada),  
2008. Second Edition 2012

All rights reserved. No part of this work may be reproduced or transmitted in any form for commercial purposes, or by any means, electronic or mechanical, including photocopying and recording or from any information stored in a retrieval system, without permission from the authors or the Federation of Canadian Archers Inc. (Archery Canada).

ISBN 978-0-920218-21-1

# Table of Contents

2	<b>Foreword: Archery Canada</b>
3	<b>What is Long-Term Athlete Development?</b>
13	<b>Shoot for Fun, Shoot to Excel, Shoot for Life: The Long-Term Archer Development Model</b>
19	<b>Archers with a Disability</b>
20	<b>Developing the Young Archer</b>
23	<b>An Integrated Archery Development System</b>
27	<b>Shoot for Life: Target and 3D, Recurve and Compound</b>
28	<b>Shoot for Life: Coach and Leader Development</b>
29	<b>Planning for Success: Strategic Initiatives</b>
30	<b>The Future: On Target</b>
31	<b>Resources</b>
	<b>A Closer Look</b>
32	Closer Look: Quality Arrows
33	Closer Look: Balancing Physical, Motor and Mental Training Factors
34	Closer Look: Skill Development
35	Closer Look: Archery Trainability and Definitions
36	Closer Look: Recommended Bow Weights

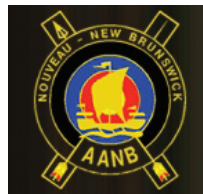
## Foreword: Archery Canada

Archery Canada has created this Long-Term Archer Development model to be a blueprint for all stakeholders involved with archers of all ages. We have done this with the support of our funding partner, Sport Canada, as part of a national initiative in which every sport in Canada has developed a similar model.

The implementation of Long-Term Archer Development is a milestone for archery and for Canadian sport. For the first time every sport organization is building its plans around a common framework which aligns the sport system, integrates health and education with sport and physical activity. This document was developed by Canada's archery experts, with the assistance of the LTAD Expert Group, and drawing on the experience and best practices of other sports.

This document outlines the key principles of the Archery Canada LTAD Model. The details of how LTAD will be implemented will be developed in the next phase. The successful implementation of the LTAD model will lead to better and more skilful archers, a thriving sport supported by quality coaches, officials and volunteers at all levels in Canada.

We, the Archery Associations of Canada, agree that LTAD will be the basis for archery development in Canada:





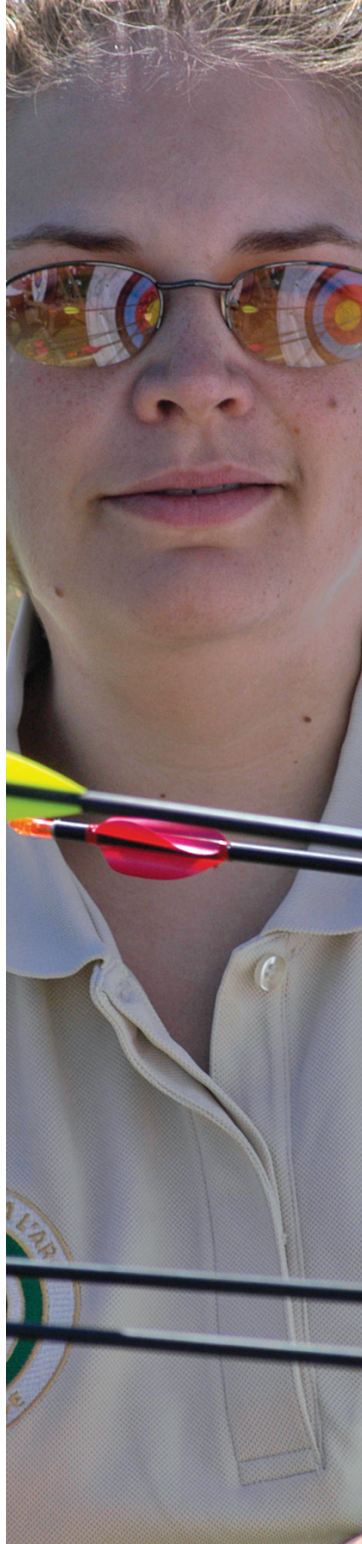
# What is Long-Term Archer Development?

What is the best way for an archer to develop?

Long-Term Archer Development answers that question. LTAD is a new wave in athlete development, based on the integration of sport science research with experience in working with archers and coaches to develop a comprehensive set of development principles. LTAD takes the concept of periodisation (the integration of competition, training, recovery, nutrition, and other elements of preparation to create a long-term training plan) to the next level, by integrating preparation over an entire career or lifetime, and considering the holistic development of the individual as well as his/her development as an archer. Today, every Canadian sport organization is using LTAD as the basis for their long-term planning. More information can be found in the document "Canadian Sport for Life", as well as other LTAD resource papers published by the Canadian Sport Centres and available at [canadiansportforlife.ca](http://canadiansportforlife.ca).

While an archer can enter the sport at any age, a key LTAD premise is that participants will not only be more successful in sport, but healthier throughout life if they develop "physical literacy" at a young age — a wide range of skills that include movement, balance, throwing, catching, hitting, etc. The development of sound physical literacy skills, followed by ongoing learning and training introduced during "windows of optimal trainability" keyed to developmental ages and stages, is necessary for any athlete to reach his or her full potential. Missing a step, or introducing the "5 S's" (stamina, strength, speed, skill and suppleness) too early or late, restricts the athlete's potential and makes reaching the highest levels of performance more difficult. However, by understanding the 10 Key Factors of LTAD, coaches can help archers of any age participate and achieve their aspirations more effectively.





Ten key factors influencing optimal athlete development have been identified:

**1. The FUNdamentals:** Basic physical literacy is the foundation for later athletic success. All athletes, regardless of their sport, are more likely to succeed if early in life they developed a wide range of movement, balance and object control skills.

**2. Specialization:** Broad-based skills and abilities must be developed first. Premature specialization (prior to age 12-14 in archery) may contribute to lack of essential skill development, overuse injuries, early burnout and early retirement from sport and physical activity.

**3. Developmental Age:** Young athletes may be early, average or late maturers in a range of physical, mental, cognitive and emotional qualities. It is essential to base athletic training on developmental age, not on chronological age. All too often, early maturers are identified for special attention and development, while it is the late maturers who may have the greater potential to become top athletes. It is also important to recognize that the early physical maturer may not be mentally or emotionally prepared for the challenges they appear ready to take on.

**4. Trainability:** Trainability is the responsiveness of individuals to training at different stages of growth and maturation. Windows of optimal trainability for the “S’s” of Stamina, Strength, Speed, Skill and Suppleness occur at different times- for example, stamina and strength trainability is linked to developmental age, while speed, skill and suppleness (flexibility) are linked to chronological age.

**5. Physical, Cognitive, Mental and Emotional Development:** A holistic approach to athlete development, considering all of these factors, is required for the best results. In addition to the five “S’s” of physical development, five additional “S’s” including Structure/stature (body type and growth), pSychology, Sustenance (adequate nutrition, hydration and rest), Schooling (and stress), and Sociocultural factors must be considered. At any stage, over-emphasis on physical training and winning may not equip the athlete for the all challenges of high performance or for life outside sport. Developing the whole athlete, including character, ethics, and so on, should be the objective of every program.

**6. Periodization:** Periodization is the organization of a training program by manipulating modality, volume, intensity and frequency of training over long-term (multi-year) and annual time frames, using training, competition and recovery periods. LTAD, with its focus on lifelong development, sets context and direction for a sound, periodised training program.

**7. Competition Calendar Planning:** Optimal sport-specific competition calendars are required for all stages of LTAD. Too much competition, especially at younger ages, can detract from development of skills and fitness. Optimizing the competition calendar to meet athlete development needs, while it may create logistic challenges, is essential to LTAD.



**8. The 10-Year Rule:** Research has concluded it takes a minimum of 10 years and 10,000 hours of training for a talented athlete to reach elite levels, while a study of Canadian Excellence and FITA World Championship archers showed it took an average of 7.2 years to achieve a score of 1300 for recurve and 1350 for compound archers- and more to reach a consistent level of top performance. There are no short-cuts.

**9. System Alignment and Integration:** The best results can only be achieved when all organizations and individuals involved in sport are working together in an integrated, coordinated way to support athlete development and success. Coaches, other sport leaders, facilities, organizations and competitions must work together to create an environment that supports athlete development. The LTAD model must become the focus of all archery leaders and organizations.

**10. Continuous Improvement:** Sport is continuously evolving. Our plans and our organizations must adapt continuously to innovations, research and changes in the sport environment. New research and practical experience will constantly enrich our understanding and approach to LTAD.





## Stages of LTAD

The LTAD model divides archer development into a series of stages. Within each stage, appropriate development is essential. Only by following age-appropriate activities and building a foundation in each stage for the next can archers optimally prepare to progress toward their goals.

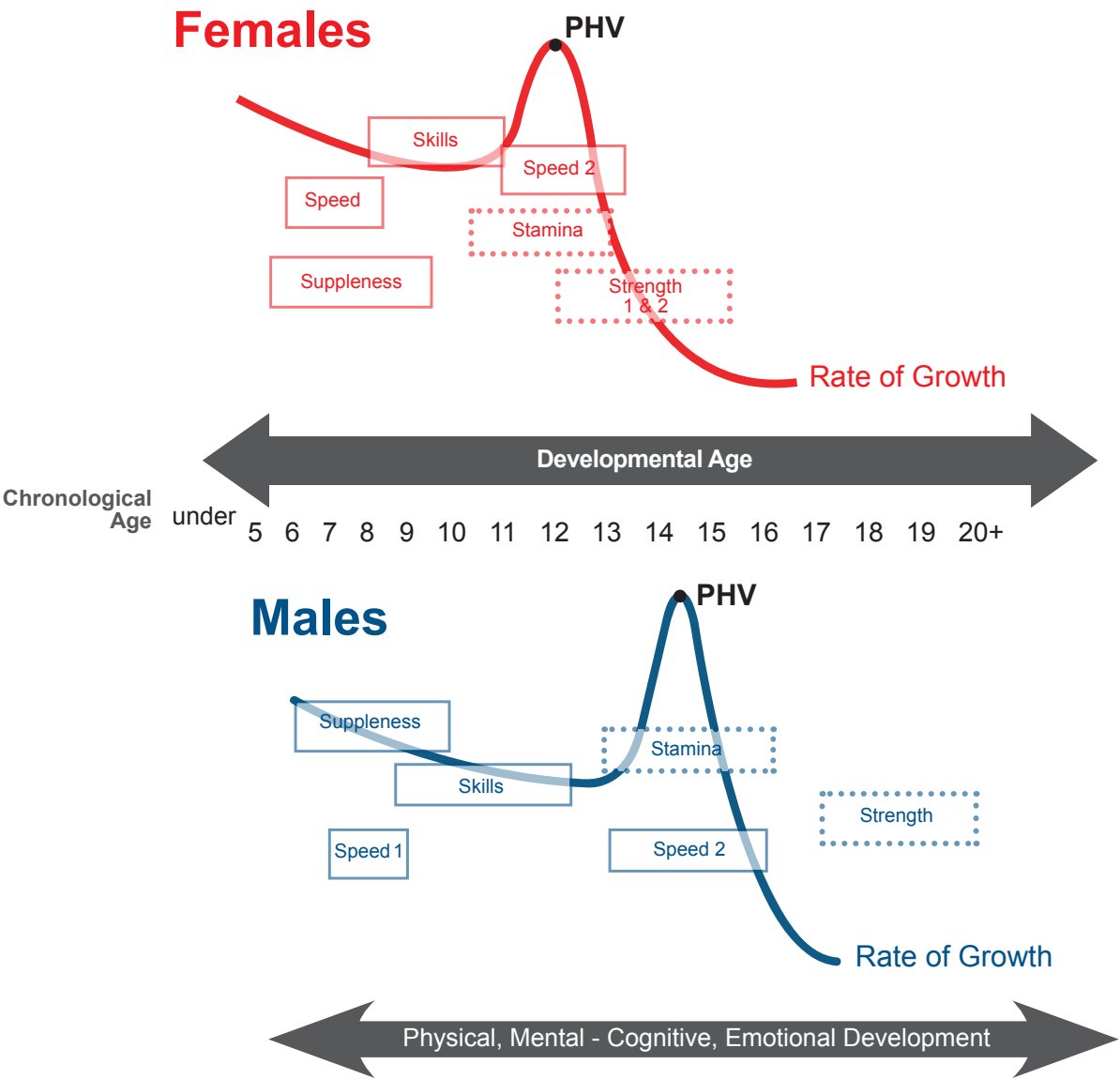
The stages of archery's LTAD model are shown to the left.

In archery, many participants begin at later ages, and come to the sport with some foundation of physical literacy and fitness developed in other activities. No matter what their age, they must progress developmentally from Learn to Shoot to Shoot to Excel stages if they are to become high performance archers. For those who choose to participate but not pursue high performance, the Active for Life stage is open at any age after basic skills are developed.

For archers with a disability (AWAD) two more stages are added at the beginning: Awareness and First Contact. These emphasize the need to make access to sport known to people with a disability, and then to ensure that the sport environment and first exposure are positive and welcoming. Information about LTAD for archers with a disability can be found in the LTAD publication No Accidental Champions at [canadiansportforlife.ca](http://canadiansportforlife.ca).

### Sensitive Periods of Development

The developmental stages are sensitive for young athletes. Peak Height Velocity (PHV), the maximum rate of growth during the adolescent growth spurt, is the key marker event for windows of optimum trainability for some of the physical "S's" of stamina, strength, speed, skill and suppleness. It is essential that the introduction of training of these S's is based on developmental age, not chronological age. Development occurs at different times for different young athletes. If the windows are missed, the athlete may not develop to full potential. This underlines the importance of youth recruitment, age-appropriate programs, and optimal coaching and competition calendars in archery. Coaches, especially, must have the expertise to identify the athlete's stage and the programs and systems that will allow the athlete to train and compete appropriately to his or her potential. However, even if windows are missed, all systems are always trainable.





## The “10 S’s”

Holistic athlete development depends on a balanced approach to training, competition and recovery which lays a solid foundation for each successive stage. Reference has already been made to the original five “S’s” of physical development: Stamina (endurance), Strength, Speed, Skill and Suppleness (flexibility). The optimal development of these skills cannot occur without attention to five more “S’s”: Structure/stature (body type and growth), pSychology, Sustenance (adequate nutrition and rest), Schooling (or Stress), and Sociocultural factors.

**Structure/stature:** 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 strength and weaknesses is critical to factor “structure” properly into training plans.

**pSychology:** 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 LTAD, as dealing with success and failure will determine whether the athlete continues in the sport and physical activity in general.

**Sustenance:** Sustenance recognizes a broad range of components with the central theme of replenishing the body, including nutrition, hydration, rest, sleep, and regeneration, all of which need to be applied differently to training (life) plans depending on the stage of LTAD. Underlying sustenance is the need for optimal recovery management: the athlete moves to a 24/7 model which places a high degree of importance on the individual’s activities away from the field of play. To achieve proper sustenance and recovery, the coach and/or parent must monitor recovery through the identification of fatigue.

**Schooling (or Stress):** When designing training programs for young athletes, the demands of school must be considered. This is not only limited to the demands placed by school sports or physical education classes but includes integrating school academic loads, duties, timing of exams and other stresses. For mature athletes, a similar approach must be taken to work. When possible, training camps and competition tours should complement, not conflict, with the timing of major academic or work events. Overstress (the stress of life events over and above sport training) should be monitored carefully.

Interference from other school sports should be minimized, and communication between coaches responsible for delivering the training and competition programs, is essential. Parents should work together with coaches to ensure a coordinated approach.

**Sociocultural:** Socialization through sport participation 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 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 positive societal values and norms will be internalized via sport participation. 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 LTAD. Overall, sociocultural activity does not interfere with competition activities: It is a positive contribution to the development of the person and the athlete.

## Why Does Archery Need LTAD?

Although archery in Canada has a tradition of modifying the sport for young participants and introducing skills through programs such as CanBow/CanArc, we face many of the same challenges as other sports in Canada. In addition to the well-known shortcomings in government funding support, insufficient physical education and sport in schools, etc, there are issues directly related to coaches, parents, clubs and administrators. The following is from a general overview of Canadian sport prepared by Sport Canada's LTAD Expert Group, but many points apply to archery as well:

### Coaches

- Training methods and competition programs designed for male athletes are superimposed on female athletes
- Need more female coaches
- Lack of understanding of coaching athletes with a disability
- Coaches largely neglect the sensitive periods of accelerated adaptation to training
- Adult training programs are imposed on developing athletes
- Preparation is geared to the short-term outcome — winning — and not to the process
- Need to promote lifelong learning and development for coaches

### Organizations

- Developmental athletes over-compete and under-train
- Adult training and competition programs are imposed on developing athletes
- Chronological rather than developmental age used in training and competition planning
- Lack of training facilities
- Programming for profit vs. development
- Lack of entry level programs
- Clubs lack specific role and mandate linked to a coordinated system

### Parents

- Parents are not educated about LTAD
- Parents may not understand the sport system and “which organization does what”
- Sports specialize too early in an attempt to win or to attract and retain participants; parents need to understand and resist this tendency
- FUN is forgotten

### Sport Leaders

- Competition system interferes with athlete development (skews or reduces training)
- No talent identification
- No integration between physical education in schools, community programs, and elite competitive programs
- Failure to integrate athletes with a disability
- Fundamental movement skills and sport skills are not taught properly
- The most knowledgeable coaches work at the elite level and not at the developmental level where quality coaches are essential
- May have difficulty funding youth
- Programming is not a priority
- Forced to change mission/mandate in pursuit of funding



**As a consequence of a deficient system, athletes may suffer:**

- Injury
- Failure to reach optimal performance levels in international competitions
- Poor movement abilities
- Lack of proper fitness
- Poor skill development
- Bad habits developed from over-competing focussed on winning
- Undeveloped and unrefined skills due to under-training
- Female athlete potential not reached due to male oriented programs
- Children not having fun as they play adult-based programs
- No systematic development of the next generation of national and international athletes
- Athletes pulled in different directions by school, club, and provincial organizations because of the structure of competition programs
- Remedial programs needed by provincial and national team coaches, to counteract the shortcomings of athlete preparation
- Fluctuating performance due to lack of talent identification and a clear developmental pathway
- Athletes fail to reach their genetic potential and optimal performance level
- Athletes leave sport and want nothing to do with it later

Archery's new Long-Term Archer Development model addresses these issues. By introducing LTAD principles and building an integrated archer development system around them, we can achieve greater participation and competitive success.

## Archery's Development Pyramid

In a long-term archery development system, optimal preparation for success depends on a progressive building of preparation using the six elements of the "archery pyramid" – Fun, Form, Fitness (strength), Fitness (endurance), Focus and Flow. These six elements represent an archery-specific approach to the "10 S's" (see p. 8). Each element builds on the previous and each must be introduced at the appropriate stage of development.

**Fun:** Opportunity for participation in other activities, unstructured play, and experimentation is essential in every stage to maintain interest and freshness and to stimulate creativity. Remember, the number one reason for drop-out from sport is "it stopped being fun."

**Form:** The applied biomechanics of archery. Good form is the foundation of accurate shot-making, and depends on correct body position and movement sequencing as well as correct equipment selection and underlying posture and strength. Form is based on the physiological and psychological abilities of balance, flexibility, core strength and stability, strength and power, gross and fine motor skills, coordination, visual acuity, and aiming and hitting.

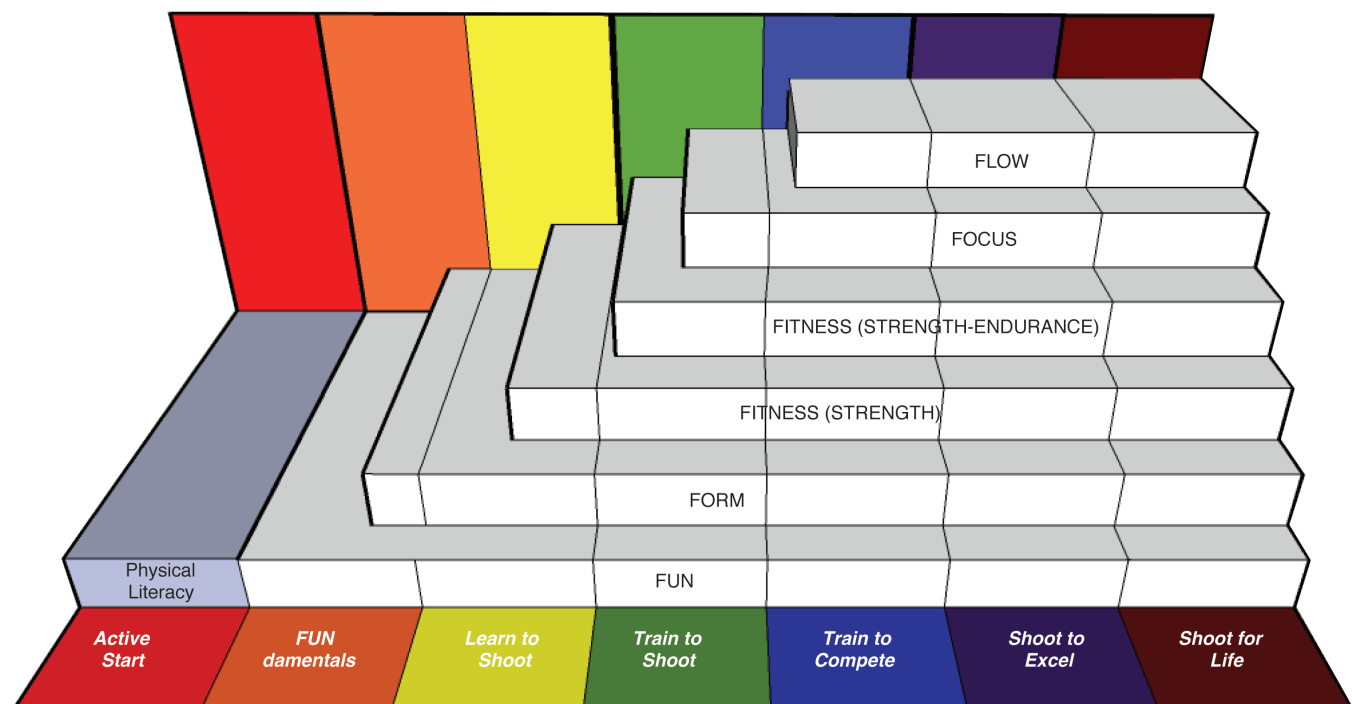
**Fitness (strength):** As the basics of good form are in put into place, the archer develops sufficient muscular strength to draw the bow. Increased strength as the archer continues development allows controlled use of bows of greater draw weight, and therefore greater shot distance. Bi-lateral development is important to avoid development of postural imbalance and chronic injury. Strength includes the capacities of neuromuscular patterning and adaptation (Strength 1), and hypertrophy (Strength 2).

**Fitness (strength-endurance):** With basic strength in place, strength-endurance, or the ability to draw the bow repeatedly without fatigue, becomes critically important. This is particularly essential in competition. Aerobic endurance and continued development of all-round fitness compliments strength-endurance and are also developed.

**Focus:** “The mental game.” Focus includes all elements of mental preparation necessary to cope with competitive pressure and maintain accuracy in all conditions. This includes introducing a shot sequence, and elements of relaxation, self-talk, and focus strategy.

**Flow:** Flow is the integration of all the key elements plus the accumulation of experience and knowledge of competition, to achieve mastery and high performance. While it contains technical elements (e.g. “how to shoot an Olympic round”) and physical/mental components (e.g. how to “feel the shot”) it is also in part the confidence that comes from optimal preparation.

### Archery’s LTAD Pyramid



For archers with a disability (AWAD) two more stages are added at the beginning: Awareness and First Contact. These emphasize the need to make access to sport known to people with a disability, and then to ensure that the sport environment and first exposure are positive and welcoming. Information about LTAD for archers with a disability can be found in the LTAD publication No Accidental Champions at [canadiansportforlife.ca](http://canadiansportforlife.ca).





## The Long-Term Archer Development Model

To reach his or her potential and goals, a participant needs the right training and preparation, the right competitive opportunities, the right equipment, and the right nutrition, rest and regeneration...all at the right times. This Long-Term Archer Development model defines guidelines for stage-by-stage development from entry into the sport, through to high performance and/or active participation for life.

The LTAD model is a summary of key training and performance goals for archers. This Model assumes sufficient infrastructure and support is provided; in other words, without adequate coaching, proper competition opportunities, and other key elements, archers cannot expect to meet all the training and performance goals in the LTAD model. To support our coaches and archers and achieve our goals for archery, we must build an integrated, coordinated system supporting our archers "from playground to podium" and to lifelong involvement.

Of course, archers are individuals. The LTAD model consists of guidelines, and archers, coaches, leaders and parents must be flexible in application to ensure that LTAD enhances archery as an experience and a sport for all participants. All archers need individualized programs and evaluation by a certified coach with an understanding of Long-Term Archer Development. Guidelines should never be used to select or reject archers.

It is our hope and expectation that, as a result of developing and sharing this Model, leaders and parents will know how to make decisions that benefit the Long-Term development of archers, coaches will have a common guide for the design of annual plans and programs, and archers will have the guidance and support they need to excel and to participate for a lifetime.



# Shoot for Fun Shoot to Excel Shoot for Life

## The Long-Term Archer Development Model

It only takes a single moment to become an archer. You may hold a bow for the first time at summer camp, accompany a parent or friend on a hunting trip, or watch Olympic/Paralympic archery on television and decide to become a champion. You may be five years old, or fifty. The essential thing is that the first exposure to archery provides challenge, reward and enjoyment- in other words, that it is FUN. Fun is the basis for a lifetime in sport, a process of life-long development which is captured in the Long-Term Archer Development Model.

The LTAD model groups the seven LTAD stages into a framework of Shoot for Fun, Shoot to Win, and Shoot for Life.

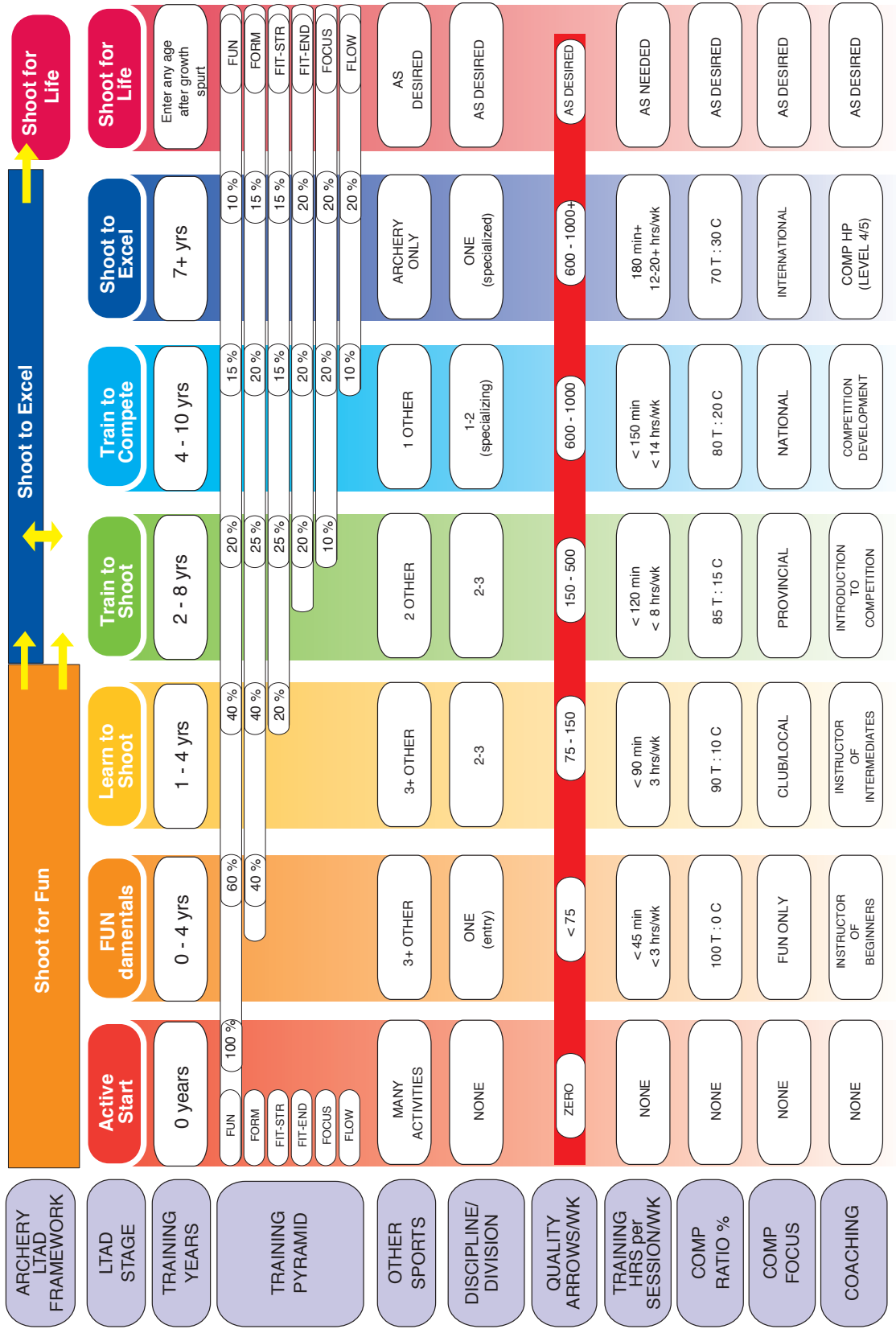
- Shoot for Fun represents the entry into the sport, up to and including the Learn to Shoot stage.
- Shoot to Excel represents development on a competition path as far as the archer wishes to go.
- Shoot for Life reminds us that the archer can remain active in the sport for a lifetime, through recreational competition, bowhunting or other forms of archery, and as a coach, official and sport leader.

Of course, this framework does not mean that fun is not an essential part of Shoot to Excel, or that a Shoot for Life archer cannot compete to win within his or her abilities. It is simply intended to represent a lifetime journey through the sport.

The central concept of the LTAD model is that of continuous learning, continuous improvement, and continuous enjoyment. It is the idea of progressive development from stage to stage, as far as the archer wishes to go. It is the idea that every achievement is built on what came before, whether those skills were developed in archery or in other sports, and that to reach his or her goals there is an ideal path in which every step is supported by a sound system of coaching, sport leadership, good facilities, and optimum competition. It is the idea of “Kaizen”, the Japanese word for continuous improvement- the understanding that where we are today is not a destination but rather a foundation for tomorrow’s achievement.

The following pages depict the journey through archery, stage by stage, for archers of all ages. A specific section on Developing the Young Archer follows on p. 20. For each stage, the key objectives, the balance of Fun, Form, Fitness-strength, Fitness-endurance, Focus and Flow, and the progress markers or “benchmarks” are listed. Remember that while every archer must progress through every stage to the level to which they aspire, every archer is also an individual. All abilities are always trainable. These objectives and benchmarks are guidelines for development, not a means to select or reject individual participants.

Long-Term Archer Development Model



## Archery Stage-by-Stage

### Shoot For Fun

**Active Start** (age 0-6; 0 sport years) and **FUNDamentals** (age 6-9; 0-4 sport years)

**Objectives:** Learn fundamental movements and link them together into play. Build overall motor skills. Emphasis on initiation, sport basics, and safety. (Note: Active Start and FUNDamentals are key motor and skill development stages for children. Adult archers must also have developed this physical literacy, if not in childhood, then later through a wide variety of sports and activities.)

#### Archery Pyramid:

Fun – 100% (Active Start) to 60% (FUNDamentals)  
 Form – Up to 40% in FUNDamentals  
 Fitness (strength) – 0%- unstructured only; part of other activity.  
 Fitness (endurance) – 0%- unstructured only; part of other activity.  
 Focus – 0%- unstructured only; part of other activity.  
 Flow – 0%- unstructured only; part of other activity.

#### Benchmarks:

Divisions and disciplines – Single division only (e.g. either recurve or compound) for sport introduction  
 Quality arrows per week – Up to 75 (FUNDamentals)  
 Bow weight – See tables p. 38  
 Training duration – No structured training (Active Start); up to 45 minutes/session (FUNDamentals)  
 Training volume – (FUNDamentals) 1-2 sessions per week, less than 3 hours in total  
 Competition – No formal competition in these stages. “Fun” competitions at end of stage.  
 Coaching – Instructor Stream: Instructor of Beginners (in FUNDamentals stage).

#### Notes:

- Free (unstructured) play is essential in these stages.
- Help participants in this stage feel competent and comfortable with activity. Games should be non-competitive and focus on activity. No participant should be left out; elimination-type games are not appropriate.
- In the FUNDamentals stage, introduce archery as one of a number of sport activities.
- FUNDamentals archery uses short distance, large targets, fun targets (e.g. balloons).

### Shoot For Fun

**Learn to Shoot** (1 to 4 sport years)

**Objectives:** Learn overall sports skills. Emphasis on development of form.

#### Archery Pyramid:

Fun – 30%  
 Form – 40%  
 Fitness (strength) – 20%  
 Fitness (endurance) – 0%- unstructured only; part of other activity.  
 Focus – 0%- unstructured only; part of other activity.  
 Flow – 0%- unstructured only; part of other activity.

#### Benchmarks:

Divisions and disciplines – Try recurve and compound, indoor and outdoor to develop a range of skills and interests.  
 Quality arrows per week – 75 to 150  
 Bow weight – See tables p. 38  
 Training duration – Up to 90 minutes per session.  
 Training volume – Archery specific training 3-4 times per week, plus participation in other sports. Total archery approximately 3 hours per week.  
 Competition – 2-4 local and club competitions, and up to 1-3 regional competitions per year; 90% training, 10% competition. Treat competitions as practice.  
 Coaching – Instructor Stream: Instructor of Intermediates.

#### Notes:

- A structured training program should be introduced.
- Participate in 2-3 other sports as well as archery.
- Participate in CanBow/CanArc.
- Use standard archery targets and distances.
- Introduce archery competition at local/club levels.
- Participate in several disciplines to build a foundation of archery skills.

### Shoot For Fun

#### Learn to Shoot (1 to 4 sport years)

**Objectives:** Learn overall sports skills. Emphasis on development of form.

#### Archery Pyramid:

Fun – 30%

Form – 40%

Fitness (strength) – 20%

Fitness (endurance) – 0%- unstructured only; part of other activity.

Focus – 0%- unstructured only; part of other activity.

Flow – 0%- unstructured only; part of other activity.

#### Benchmarks:

Divisions and disciplines – Try recurve and compound, indoor and outdoor to develop a range of skills and interests.

Quality arrows per week – 75 to 150

Bow weight – See tables p. 38

Training duration – Up to 90 minutes per session.

Training volume – Archery specific training 3-4 times per week, plus participation in other sports. Total archery approximately 3 hours per week.

Competition – 2-4 local and club competitions, and up to 1-3 regional competitions per year; 90% training, 10% competition. Treat competitions as practice.

Coaching – Instructor Stream: Instructor of Intermediates.

#### Notes:

- A structured training program should be introduced.
- Participate in 2-3 other sports as well as archery.
- Participate in CanBow/CanArc.
- Use standard archery targets and distances.
- Introduce archery competition at local/club levels.
- Participate in several disciplines to build a foundation of archery skills.

### Shoot to Excel

#### Train to Shoot (2 to 8 sport years)

**Objectives:** Build an aerobic base, develop speed and strength towards the end of the stage, and further develop and consolidate sport-specific skills. Emphasis on refining form and building fitness.

#### Archery Pyramid:

Fun – 20%

Form – 25%

Fitness (strength) – 25%

Fitness (endurance) – 20%

Focus – 10%

Flow – 0%- unstructured only; part of other activity.

#### Benchmarks:

Divisions and disciplines – Try recurve and compound, indoor and outdoor to develop a range of skills and interests.

Quality arrows per week – 150 to 500

Bow weight – See tables p. 38

Training duration – Up to 120 minutes per session.

Training volume – Archery specific training 3-5 times per week including fitness training. Total approximately 8 hours per week including 2-3 hours of fitness training.

Competition – 5 to 6 local, 2 regional or provincial competitions per year. Introduce 1-2 national or international competitions at end of stage. 85% training, 15% competition.

Coaching – Competition Stream: Introduction to Competition.

#### Notes:

A structured, periodized program with single or double periodization is recommended.

- Avoid using competition for selection. Compete for development and learning- initial development of focus skills.
- Reduce the number of other sports, but maintain exposure to multiple disciplines for development and future choice. Refine form.
- For young archers, coaches must be aware of the rapid changes to physical, emotional, and cognitive abilities in this period and provide individual training approaches. Performance may decrease due to these changes during puberty and post-puberty so additional support will be needed.

## Shoot to Excel

### Train to Train (4 to 10 sport years)

**Objectives:** Optimize physical preparation and sport-specific skills. Learn competition and performance skills. Emphasis on refining fitness and focus, shooting for score.

#### Archery Pyramid:

Fun – 15%  
Form – 20%  
Fitness (strength) – 15%  
Fitness (endurance) – 20%  
Focus – 20%  
Flow – 10%

#### Benchmarks:

Divisions and disciplines – Recurve or compound (specialize); indoor and outdoor.  
Quality arrows per week – 600 to 1000  
Bow weight – See tables p. 38  
Training duration – Up to 150 minutes per session.  
Training volume – Archery specific technical, tactical and fitness training 8-12 times per week. Total up to 14 hours per week including 4 - 6 hours fitness training.  
Competition – 5-6 local, 2 each regional, provincial, national, international per year. Up to 3 international competitions by end of stage. 80% training, 20% competition.  
Coaching – Competition Stream: Competition Development.

#### Notes:

- Year-round, high intensity training. Single or double periodization (2 x 24 weeks) recommended. Training program focuses on building on strengths and remediation of weaknesses.
- Use functional analysis of flexibility and strength to develop a periodized strength training program as part of training program. Focus on preventing or overcoming imbalances, core strength, specific strength and endurance.
- Specialization; reduce alternate sports and archery divisions and disciplines. Specialize in a single division (i.e. recurve or compound).
- Increase in number and level of competitions; model competitions in training. Exposure to top-level competition.

## Shoot to Excel

### Shoot to Excel (7+ sport years)

**Objectives:** Optimize physical preparation, competition and performance skills. Emphasis on perfecting focus and flow, shooting for rankings.

#### Archery Pyramid:

Fun – 10%  
Form – 15%  
Fitness (strength) – 15%  
Fitness (endurance) – 20%  
Focus – 20%  
Flow – 20%

#### Benchmarks:

Divisions and disciplines – Fully specialized in recurve or compound; indoor and outdoor  
Quality arrows per week – 600 to 1000+  
Bow weight – See tables p. 38  
Training duration – 180+ minutes per session.  
Training volume – Archery specific technical, tactical and fitness training 10-15 times/week. Total 12-20+ hours per week.  
Competition – 5-6 local, 2 each regional, provincial, national, 4 international. 70% training, 30% competition.  
Coaching – Competition Stream: Competition High Performance (current Level 4/5 coach).

#### Notes:

- Specialization in one archery discipline and division-indoor plus outdoor training recommended.
- Year-round, high intensity training. Single or double periodization (2 x 24 weeks) recommended. Training program focuses on fine-tuning strengths.
- Use functional analysis of flexibility and strength to develop a periodized strength training program as part of training program. Focus on preventing or overcoming imbalances, core strength, specific strength and endurance.
- Integration of physical and mental training, expert skills, and competition experience to achieve "flow".
- Increased number and level of competitions. Use some competitions to model upcoming key competitions.
- Train to peak for major competitions.





### Shoot for Life

**Shoot for Life** (enter at any time after growth spurt and/or basic skills developed)

**Objectives:** Transition from competitive career to lifelong physical activity and participation in sport.

#### Archery Pyramid:

Fun – 40%  
 Form – 10%  
 Fitness (strength) – 10%  
 Fitness (endurance) – 10%  
 Focus – 10%  
 Flow – 20%

#### Benchmarks:

Divisions and disciplines – As desired.  
 Quality arrows per week – As desired.  
 Bow weight – See tables p. 38  
 Training duration – As desired.  
 Training volume – As desired.  
 Competition – As desired.

#### Notes:

- Training and competition may range from recreational to high intensity depending on the particular goals and abilities of the archer.
- Age group competitions.
- Give back to the sport as a volunteer, coach, official or administrator.

## Archers With a Disability

Archery is one of only a few sports in which many archers with a disability (AWAD) are able to compete with a minimum of equipment or rule modifications. For this reason archery is considered “fully integrated” with AWAD competing alongside able-bodied competitors. However, there are special competitive categories for archers with a disability. For example, in 2007 and 2009 Canada’s Kevin Evans (Jaffrey, BC) won the Para-Archery World Championship in the AR Compound Men’s Open division.

Archery was one of the sports at the first Paralympic Games in Rome, 1960. The sport is open to archers with a physical disability (including spinal injury, cerebral palsy, amputee and les autres) in three functional classes- standing (ARST), wheelchair 1 (ARW1) and wheelchair 2 (ARW2). In 2007, the Visually Impaired class was also competed for the first time at a World Championship. Archers are classified and compete according to the type and level of disability. Individual and team events, and standing and wheelchair competitions, are included.

Despite the full integration of AWAD into archery, more can be done to make the sport known and accessible to persons with a disability. This requires additional emphasis on two areas- awareness and first contact.

Awareness means increasing the visibility of archery among persons with a disability. Many persons with a disability are not aware of opportunities in sport, or believe that they will not be able to participate. Archery, as an integrated sport, has advantages in this regard. Increased promotion of the sport to disabled persons may help increase the number of AWAD entering the sport.

Then comes “first contact”. “First contact” usually refers to the first time an athlete encounters a sport, or has an opportunity to try a sport. It is important to understand that “first contact” works both ways- when the athlete meets the sport and coach, and when the coach meets the athletes. For both coach and athlete, first contact may bring apprehension or fear. The athlete may be asking: “Can I do this? Will I be accepted?”

It can take more courage for an athlete with a disability to try a new sport. Archery coaches and sport leaders can do their part to help more archers take part by understanding the Awareness and First Contact stages and by actively inviting persons with a disability to try archery. For more information, see the Canadian Sport Centres publication *No Accidental Champions* at [canadiansportforlife.ca](http://canadiansportforlife.ca).



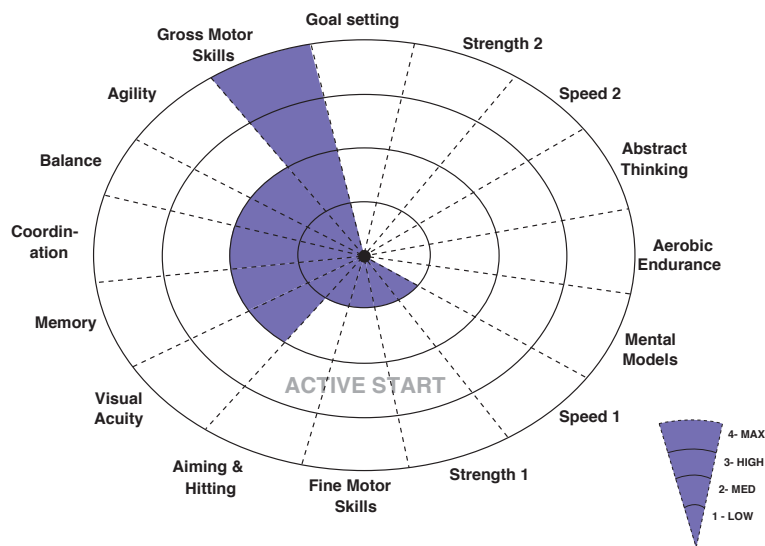


# Developing the Young Archer

A guiding principle of LTAD is age and stage-appropriate development. Key Factor 4, Developmental Age, points out that individuals develop physically, socially, emotionally, and intellectually at different rates, and that the coach of young archers must be aware of the individual's development and able to modify training and competition to suit individual needs.

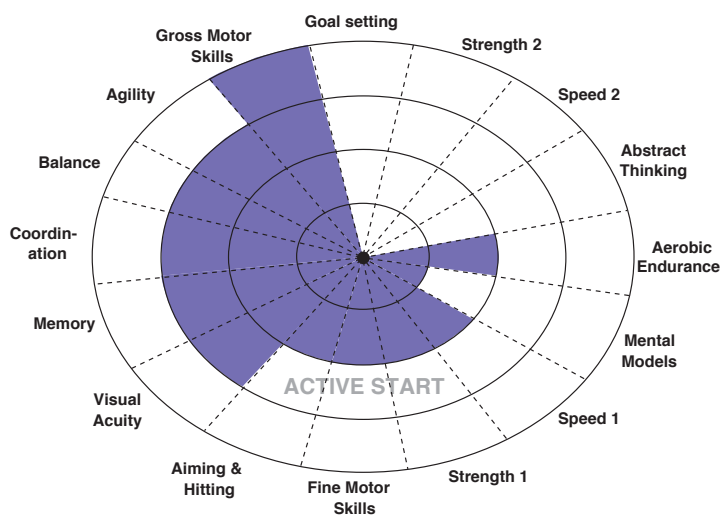
Providing the right training during sensitive periods of development lays the foundation for optimal performance at later stages. Coaches of archers between 9 and 16-18 years old must be aware of these periods and how to work with them. (Key Factor 5: see p. 6) The following graphs and notes show the windows for the main physical, motor and mental abilities as they develop. (See the Definitions on p. 36 for more information.)

**Active Start:** 0-6 years old and/or 0 sport years



- Provide organized physical activity for at least 30 minutes a day for pre-schoolers.
- Provide unstructured physical activity-active play- for at least 60 minutes every day for toddlers and preschoolers. Toddlers and preschoolers should not be sedentary for more than 60 minutes at a time except while sleeping.
- Enjoy a wide range of basic movement skills such as running, jumping, throwing, twisting, wheeling, kicking, throwing and catching. Archery can be introduced to children with adequate body awareness.

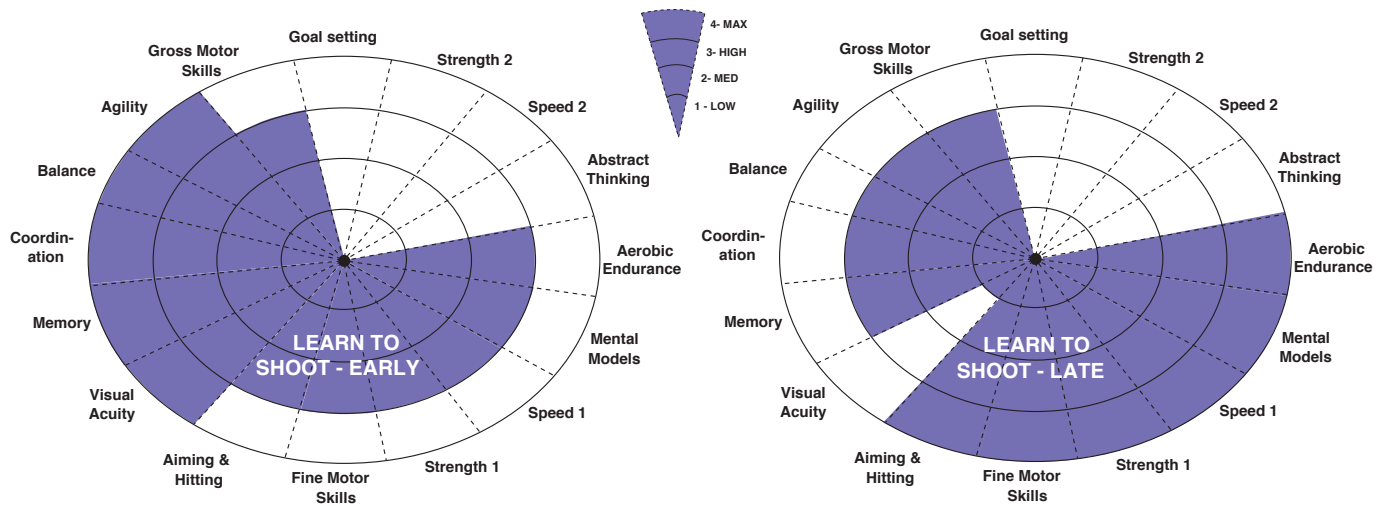
**FUNDamentals:** 6-9 years old and/or 0-4 sport years



- Practice and master fundamental movement skills before sport-specific skills are introduced.
- Emphasize overall development of the ABC's of athleticism: agility, balance, coordination and speed.
- Participate in a wide range of sports. Develop speed, power and endurance using games.
- Introduce archery: basics of safety, form and games.

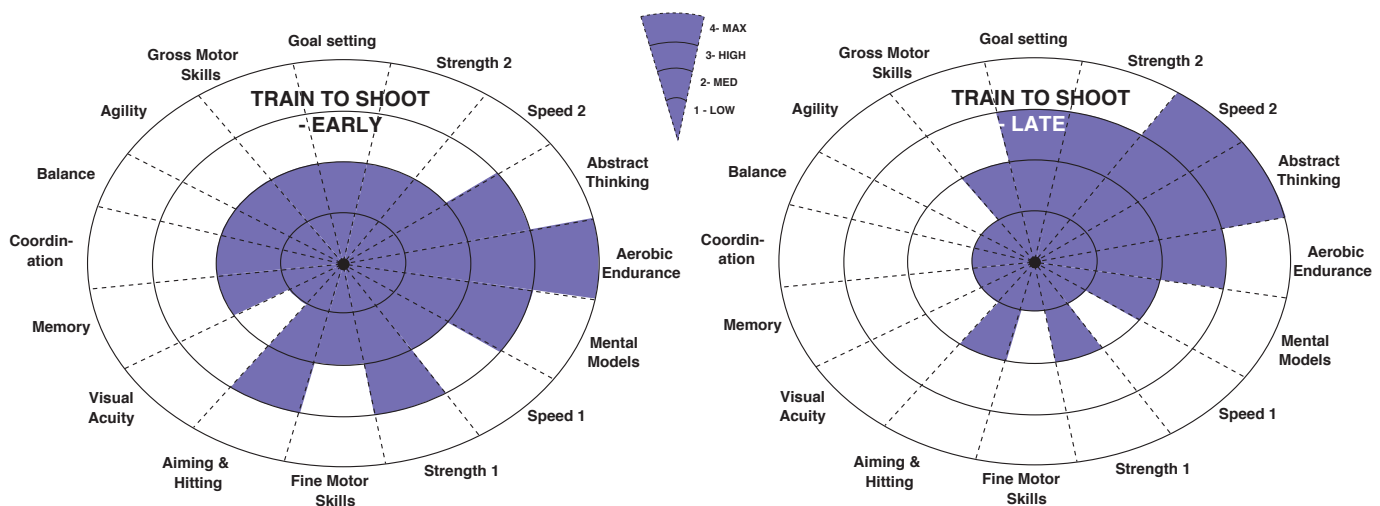
**Learn to Shoot:** 9 -12 years old (M), 8 -11 years old (F) and/or 1-4 sport years

- Early- and late-stage graphs are shown.
- This is a sensitive period for development of motor skills and coordination.
- Note the high trainability for balance, visual acuity, aiming and hitting and fine motor skills.
- Participate in a wide range of sports. Develop speed, power and endurance using games.

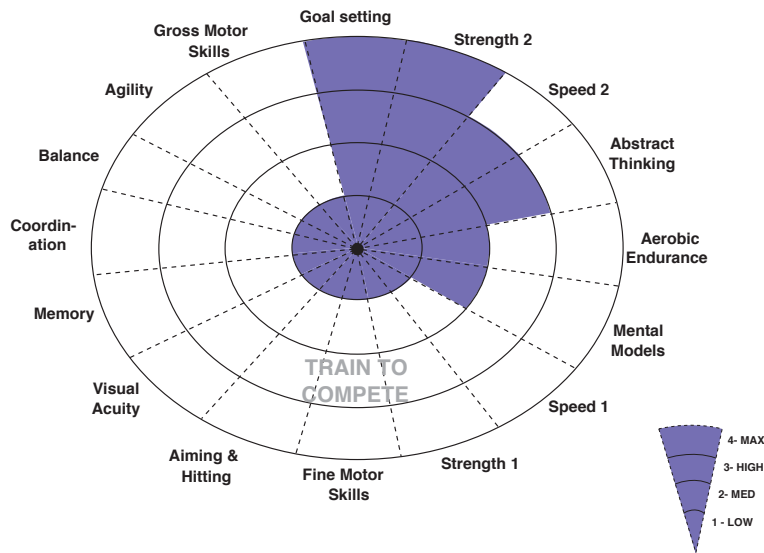


**Train to Shoot:** 12-14 years old (M), 11-13 years old (F) and/or 2-8 sport years

- Early- and late-stage graphs are shown.
- Prioritize aerobic training (post peak height velocity) to maximize the window of trainability.
- Emphasize flexibility training given rapid growth of bones, muscles and connective tissue.
- Introduce goal setting and competition skills, but emphasize physical development
- Possible decline in performance late in stage due to growth spurt (interference with coordination, etc) and onset of adolescence.

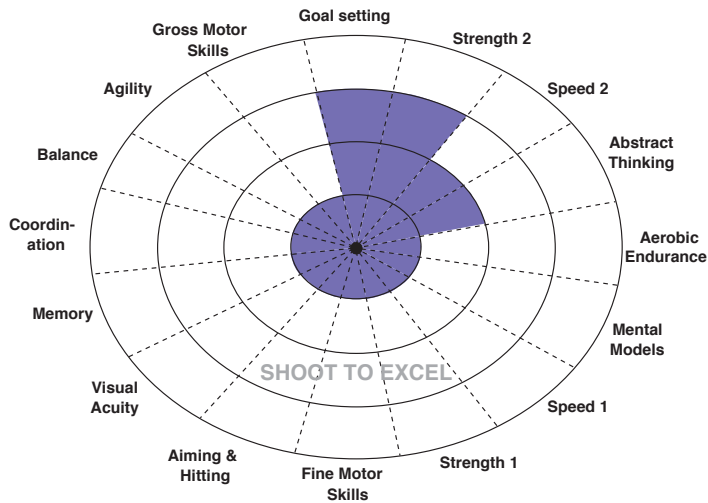


**Train to Compete:** 16 to 23+/- years old (M), 15 to 21+/- years old (F) and/or 4-10 sport years



- Optimize the physical development of the archer.
- Emphasize development of strength and strength-endurance.
- Major emphasis on learning competition skills and focus. Exposure to top-level competition.
- Possible decline in performance early in stage due to early adolescent life events.

**Shoot to Excel:** 19+/- years old (M), 18+/- years old (F) and/or 7+ sport years



- Optimize all physical and mental skills.
- Specialization and refinement are key objectives.
- Note high trainability in goal setting and Strength 2 (muscle building).
- High intensity training with rest as required.

## Summary

Canada can do more to recruit young archers and help them develop. At the 2004 Athens Olympic Games, the average age of a male medallist was 27.4 (range 17.6 - 42.9), and the average age of a female medallist was 25 (range 19.8 – 33.2). According to the Ten Year Rule, that means average age of entry into archery from 15 to 17 years old. In the FITA survey conducted by FCA in 2007, the average age of entry into archery among international competitors was 16.9.

These guidelines will prove valuable to coaches of young archers. By age 17, if windows of optimal trainability were missed, coaches must pay attention to remediation. Alternately, ways to recruit archers in the critical ages can be pursued.



# An Integrated Archery Development System

Archery truly is a sport for life. Across Canada, target archery is practiced at summer camps, in archery clubs, and other venues. Bowhunting remains a popular sport. Currently Archery Canada has over 7,000 members and over 150 clubs nation-wide. Growth in participation as well as competitive success remains the key objectives of Archery Canada.

To reach these objectives, we need to work together. Long-term archer development is athlete-centred, coach-driven and system-supported, so parents, archers, coaches, clubs, officials and other sport leaders all have their role to play. The best results can only be achieved when all organizations and individuals involved in sport are working together in an integrated, coordinated way to support archer development and success.

These points outline how each group can contribute to the sport:

## Parents:

- Participate in sport with their children
- Encourage participation of their children in two to three other complementary sports
- Provide support and guidance and make involvement in sport fun
- Be educated about archery and how one can progress through the sport
- Have basic education on nutrition/recovery
- Make a long-term commitment to skill/performance progression
- Understand the ABC's of athleticism: agility, balance, coordination and speed
- Understand the concept that increased activity reverses the current trends in childhood and adult obesity and cardiovascular disease
- Understand the concept that inactive adults tend to produce inactive children and that the reverse is also true
- Understand that children will lose motivation if they feel that cannot match their parents' expectations
- Be flexible with their expectations; as children pass through different phases of development, parents (and coaches) should modify their expectations as necessary
- Strive to get an accurate assessment of their children's ability
- This is about the development of the child; make sure parental expectations of skills, abilities and aspirations are in line with the child's
- Explore the child's expectations, goals and aspirations



**Archers:**

- Enjoy the sport
- Become adept at the key physiological proficiencies: balance, flexibility, posture, core stability, strength and power, cardio endurance and performance skills
- Understand how pressure and stress affects performance
- Understand their mental performance strengths and weaknesses
- Know what mental management skills they need to integrate into their personal performance plan to be able to control their emotions, focus on the task, and cope with adversity under pressure
- Become self-reliant and demonstrate taking independent initiative in learning and developing their skills and strategies

**Coaches and Instructors:**

- Have a passion for the sport and for excellence
- Be educated and have a thorough understanding of the LTAD
- Understand how and where they fit into the “system”
- Know what is required in order to deliver the archer to the next level
- Continue to upgrade skills and knowledge
- Have a general understanding of what is available for archers of all levels
- Accept that effective mental skills are critical to consistent, quality performances at all levels
- Integrate the mental skills training process into archer programs

**Clubs:**

- Understand their role and what is required to deliver the player to the next level
- Provide proper coaching, training and competition opportunities
- Provide proper access to training and competition facilities
- Provide a support structure i.e. finances, mentoring, resources, instruction, coaching etc.
- Be aware of and encourage junior programs such as CanBow and other entry programs

**Provincial and National Associations:**

- Be a source of information, expertise and support - the backbone to provide the necessary information, contacts, personnel and communications in archer development
- Understand what is required to deliver the player to the next level
- Facilitate discussion among the various stakeholders, clubs, archers, appropriate administrators and associations
- Find means to reduce costs to stakeholders (players, coaches, facilities etc)
- Make sure significant programming is in place to support their role
- Strive to be the best association at their level
- Place increasing emphasis on junior development and adult recreational programs to ensure the long-term growth of the sport

## Sport for Life

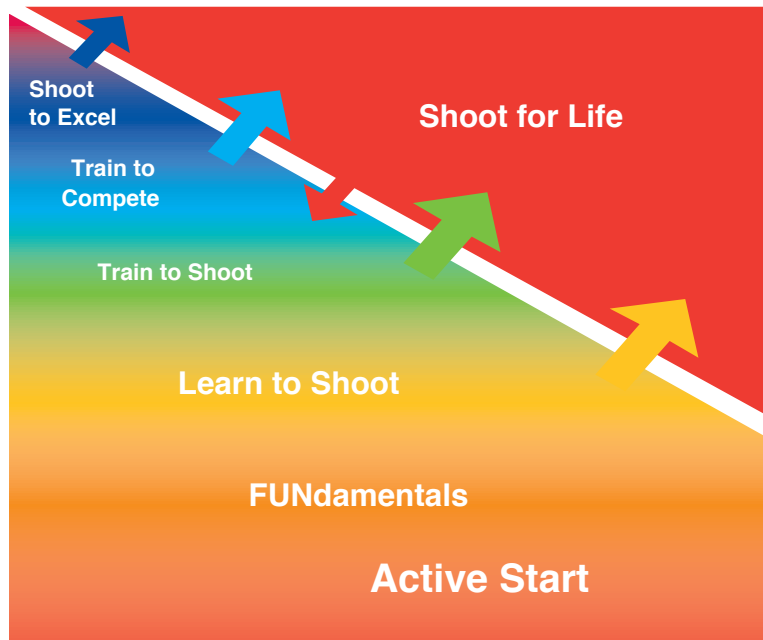
LTAD is not simply about excellence. Competitive archers typically participate in other sports before coming to archery, and one day will retire from competition. While one objective of the LTAD model is to define an optimum path to excellence and the system improvements which must be in place to support excellence, it is equally important to define a path to activity for life. Archers can migrate from competitive archery to long-term non- or semi-competitive archery at any time, and must be encouraged to stay in sport- any sport- as well as to give back by becoming a coach, official or other sport leader.



### Long-Term Archer Development

**Performance Priorities**

- Athlete Performance and Support
- Coach Education and Support
- Competition
- Equipment
- Facility Access
- Sport Medicine
- Sport Science
- Talent ID - Scouting
- Teams
  - National
  - Provincial
  - Club
- Training
- Research



**System Development**

- Clubs
- Community Initiatives
- Communications
- Facility Plans
- Financial Sustainability
- Governance
- Games
  - International
  - National
  - Provincial
- Event Hosting
- Human Resources
- Marketing
- Organizational
- School Sport Academies & Initiatives
- Risk Management
- Sport Sector
- Technology
- Volunteers

**Organized Sport - Community - School**



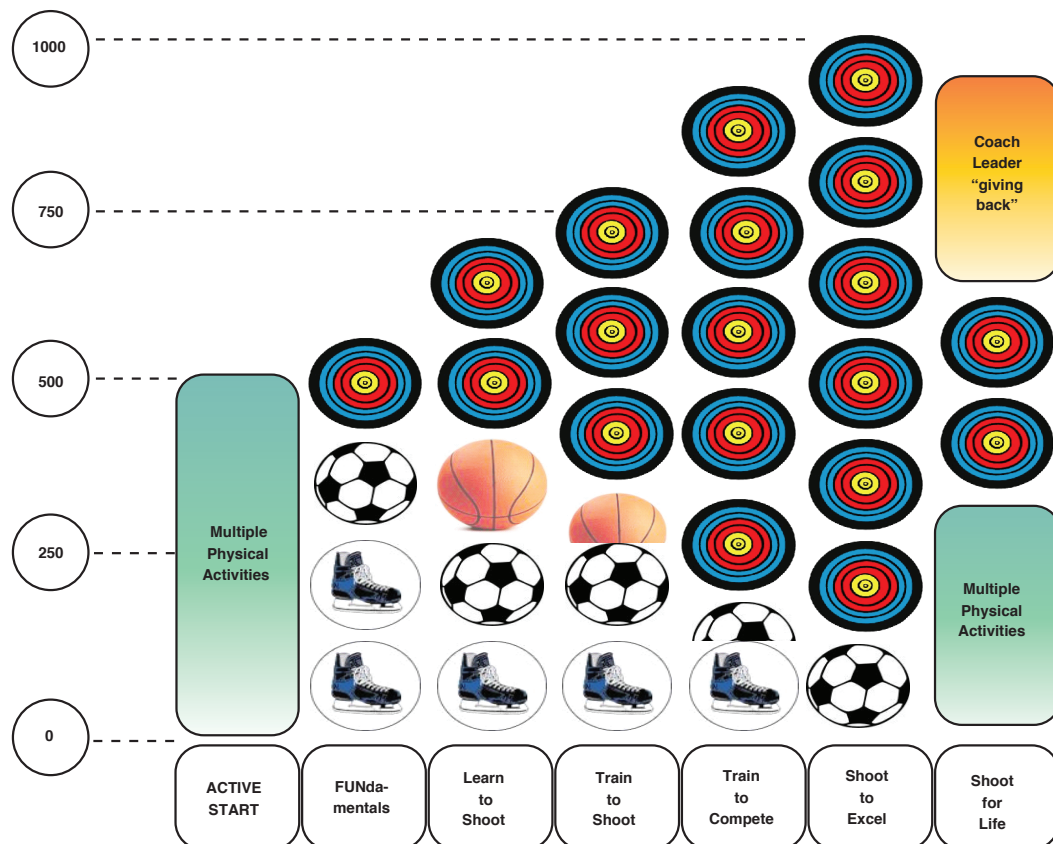
## Multi-sport, Multi-discipline Cooperation

The goal of LTAD is a physically active life resulting in a host of health and social benefits. With the right foundation and preparation, participants may also go on to become high performance archers. Physical literacy developed in the Active Start, FUNdamentals and Learn to Train stages is a prerequisite for high performance, and this is best developed through participation in a number of sport activities that help develop the "5 Ss": stamina, strength, speed, skill and suppleness.

The graph below illustrates how an individual progresses through multiple sport activities as well as disciplines within a specific sport. "Hours per year" is estimated total hours spent in all forms of physical activity. From enjoying a wide range of unstructured activities in the Active Start stage, the individual enters several organized sport programs in the FUNdamentals stage including archery. Additional archery disciplines are added in the Learn to Shoot stage to enhance skill development and promote choice. Although the entry discipline may be preferred in the Train to Shoot stage it is ultimately dropped to allow specialization in the Train to Compete stage. Finally, in the Shoot for Life stage time is set aside for giving back as a coach or leader.

In addition to demonstrating the importance of multi-sport, multi-discipline participation in building archer skills, the model raises another concept- that of cooperation with other sport organizations. For an archer to participate in more than one sport, coordination of training and competition loads, rest and recovery, travel and other factors is necessary. This will require improved communication between coaches and other sport leaders.

### Lifelong Physical Activity and Specialization





# Shoot for Life: Target and 3D, Recurve and Compound

The Shoot for Life stage can include archers of any age and with any interest. All forms of archery- target and bowhunting, recurve, compound and longbow, indoor and outdoor- are valued and supported by Archery Canada. The growth of the sport in Canada depends on providing programs and opportunities for all these archers to allow them to explore their interests and aspirations, while contributing to the greater archery community.

Participation in multiple modes of archery is recommended while the archer is developing and is encouraged for recreation. Only Shoot to Excel archers need to be concerned with specialization. Shoot for Life archers and their clubs can help promote archery by providing inter-club or cross-discipline/division events and facilities (e.g. a target range at a 3D facility).

Archery truly is a sport for life!

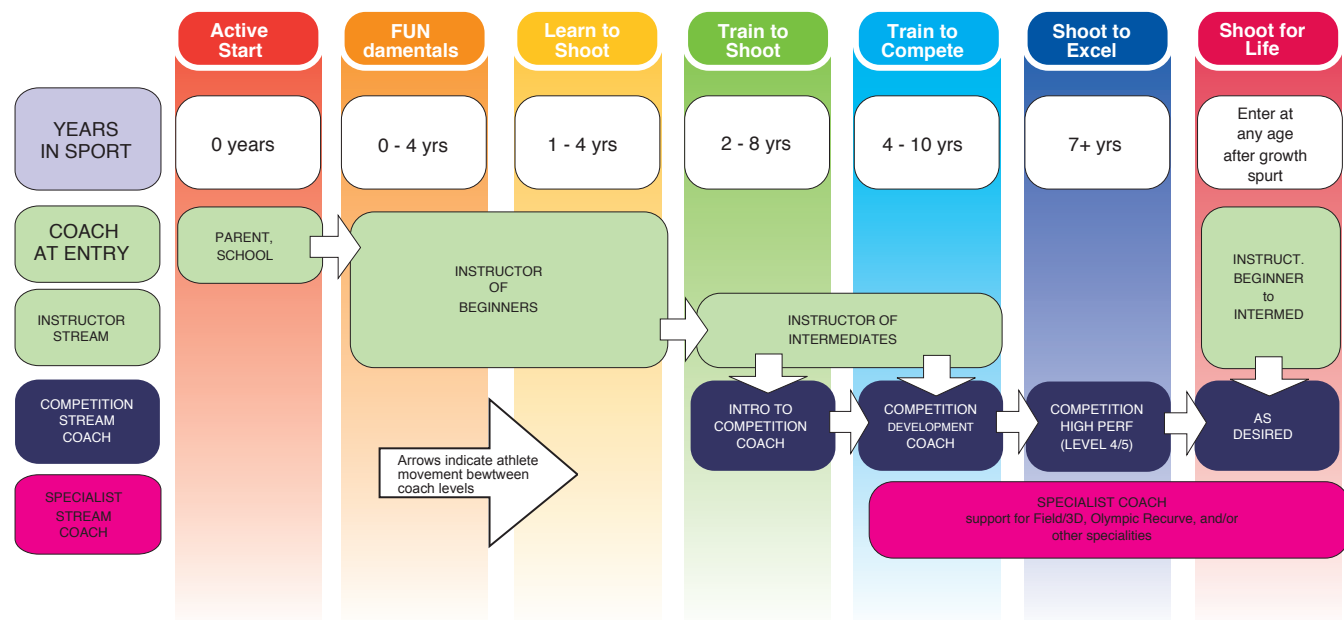


## Shoot for Life: Coach and Leader Development

The Shoot for Life stage is not just the opportunity to participate in recreational and competitive archery. It is the time to give back by participating as a coach, official or sport leader. Volunteering is essential to the continued growth of archery in Canada.

In particular, coaches are the backbone of the sport system. Vital to the development of archers at all stages, they are leaders and organizers in community sport (Active Start to Learn to Shoot) and technical experts at provincial and national levels (Train to Compete to Shoot to Excel). Coaches must have the expertise to identify the stage of maturation of the archer and the programs and systems to allow that archer to train and compete appropriately to his or her potential. We need more good coaches at all stages, and every coach must have a clear understanding of LTAD principles. Getting more and better coaching for Canadian archers is Job One for sport leaders.

Just as all Canadian sport organizations are participating in LTAD planning, all are also developing new NCCP programs. The following diagram shows the new archery NCCP in relation to the LTAD model:



Similarly, the recruitment and development of officials and sport leaders is critical to the future of archery. Archery Canada plans to increase efforts to recruit, develop and retain Shoot for Life-stage archers to contribute to the building of an integrated archery system in Canada.

When the system provides adequate support, and the archer attains the key competencies in each stage including previous, foundation stages, then the archer is able, within his or her own limitations, to reach the highest level of performance. Everyone – archer, parent, coach, club, association, etc – has to get it right for the archer to reach his or her full potential. By following the archery LTAD model and participating as both archer and builder, we can create a system which allows archers to reach their potential.

# Planning for Success - Strategic Initiatives

This LTAD model and guide will help put Canadian archery on track for long-term success: more archers enjoying the sport longer, and achieving more competitive success. However, no model makes a difference until it is put into action. Action means change.

In the development of this model and guide, a number of key issues for Canadian archery were identified. It is strongly recommended that the following steps be taken to help create the sport we need- an integrated archer development system which provides seamless support to all archers from entry into the sport through to Shoot for Life.

## First priority: **Coaching**

1. Improve communication and cooperation between Archery Canada coaches. Hold annual coach training/development seminars in each province.
2. Increase the number of trained coaches at all levels, and ensure they have a solid understanding of LTAD.
3. Make high-performance archery coaching a profession. Attract expert coaches (including international coaches, e.g. from Korea) to help build the sport.

## Second priority: **Leaders**

4. Create more leadership training opportunities in cooperation with the provincial associations.
5. Host regular Archery Canada/Provincial Sport Organization (PSO) conferences and Archery Canada/PSO Presidents meetings to focus on development issues and identify and recruit new leaders.
6. Emphasize the recruitment and support for fund raising volunteers, e.g. VP Marketing at national and provincial levels.

## Third priority: **Organizations**

7. Review the Archery Canada structure and programs to re-emphasize equality of programs and service for all forms of archery.
8. Provide standardized policies, standards and agreements on the Archery Canada website. Explore Archery Canada/PSO agreements to help coordinate efforts and delineate clear responsibilities.
9. Work toward a greater level of staff support, particularly to ensure PSOs have staff.

## Fourth priority: **Competitions**

10. Modify format of development competitions to ensure progression of distance is appropriate for all stages. Educate coaches on the appropriate use of club-inter-club-zone-regional-provincial-national-international competitions.
11. Create a technical hosting package for each level of tournaments > clubs, inter-club, zone, etc.
12. Standardize national and provincial championship and Games formats appropriate to level/stages of development, e.g. Provincial and Canada Games have a consistent role for their level/stage.
13. Provide appropriate level of funding to archers to ensure national and international stepping-stone events are attended.

## Fifth priority: **Facilities**

14. Work to obtain access to long-range indoor shooting facilities of 70+ metres in each province.
15. Work cooperatively to obtain access to outdoor FITA-distance facilities, e.g. public land, farms.
16. Obtain mobile timing equipment, nets, etc to facilitate organization of provincial training camps. Host monthly regional Excellence members camps (rotating through the provinces) including observation, seeding, Olympic Round instruction, all under regional coach supervision (indoors in winter outdoors in summer at full distances).



## The Future: On Target

“Through LTAD, we will create an optimal archery pathway for athletes. The result will be improved performance by our archers and our system: sustainable growth, increased participation, and excellence in competition.”

- Archery Canada LTAD vision statement

Archery has a long and proud history in Canada. While Canadian archery has never been the highest profile sport, Canadian archers have had considerable success at the international level. In recent years, Canadian archers have reached the podium at Senior, Para-Archery, Youth and 3D World Championships, World Cup events, Commonwealth Games, and Pan/Parapan American Games. The opportunities are there to achieve the Archery Canada vision: sustainable growth, increased participation, and excellence in competition.

Archery's LTAD model is an essential tool in achieving that future vision. By building an integrated development system that emphasizes the progressive, seamless development of archers — that is, by being archer centred, coach driven and system supported — we can reach our goals. There is no doubt this will require hard work, dedication and a willingness to change and cooperate. But with a clear pathway for archer development in place, we can succeed as never before. We are on target for a great future.





## Resources

Biathlon Canada LTAD Model Vol.1, 2006. Ball, A.,(ed.) Biathlon Canada, Ottawa, ON. ISBN 0-9781096-0-0

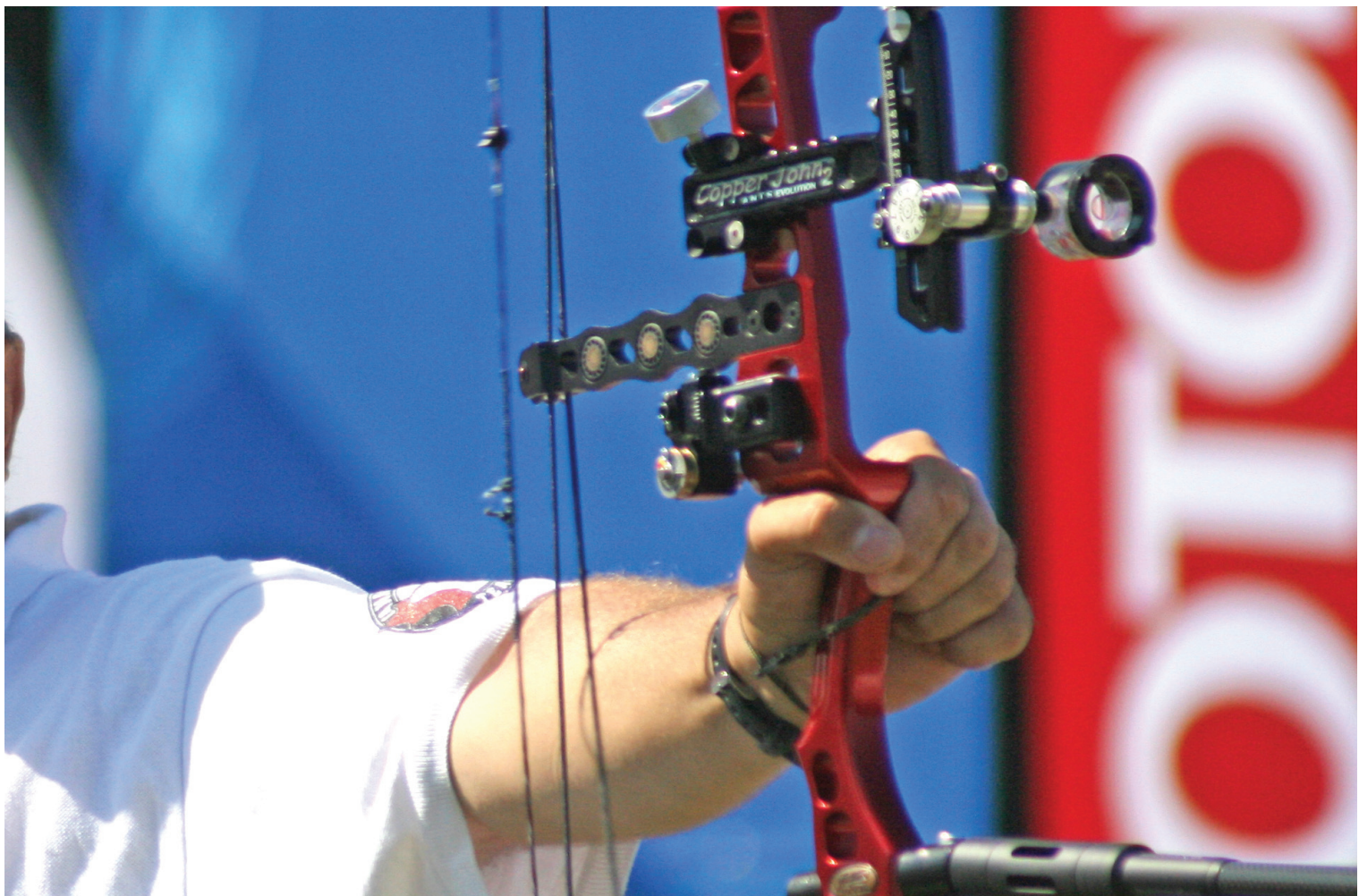
Canadian Sport for Life, 2005. Balyi, I., Cardinal, C., Higgs, C., Norris, S., and Way, R. Canadian Sport Centres, Vancouver, BC. ISBN 0-9738274-0-8

Coaching Athletes with a Disability, 2005. Coaching Association of Canada, Ottawa ON.

CanBow. Archery Canada, Ottawa, ON.

Long Term Player Development Guide for Golf in Canada, 2007. Royal Canadian Golf Association/Canadian Professional Golf Association, Ottawa, ON.

No Accidental Champions, 2006. Balyi, I., Cardinal, C., Higgs, C., Norris, S., and Way, R. Canadian Sport Centres, Vancouver, BC. ISBN 0-9738274-3-2



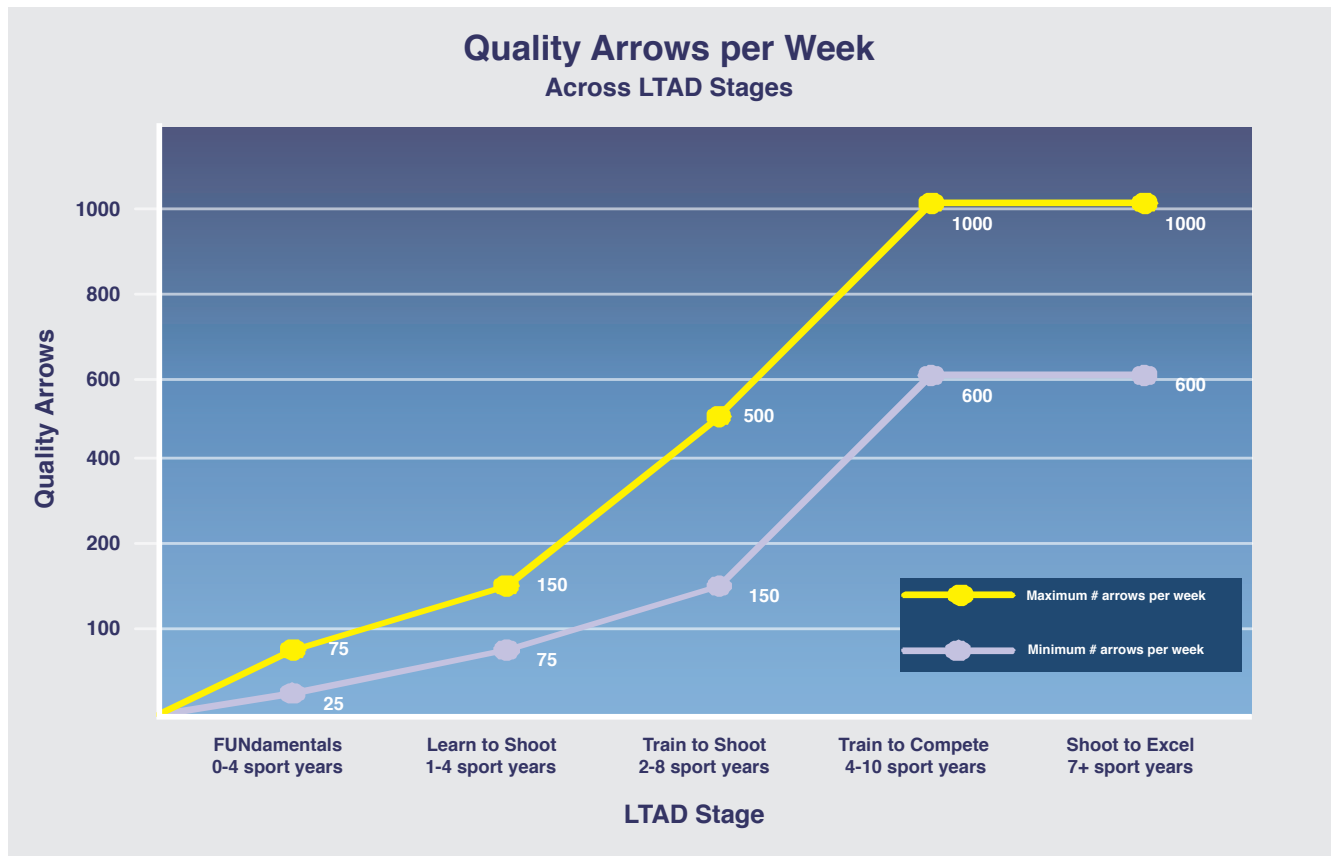
## Closer Look

### Closer Look: Quality Arrows

A key to archer development is the number of quality arrows shot in training and competition. There is no substitute for time spent refining form and shot-making skill. A survey of international archers at the 2007 Archery World Championship, revealed that top-level archers shot an average of nearly 850 arrows per week, and some shot up to 120,000 arrows per year.

FITA International Survey July 2007 n = 45	Average	Range
Age at entry into archery	16.9	5 - 47
Years involved in archery	11.3	2 - 33
Arrows per week (average)	847	300 - 2500
Arrows per year (average)	39,567	10,000 – 120,000
Most arrows shot in one year	40,587	10,000 – 120,000

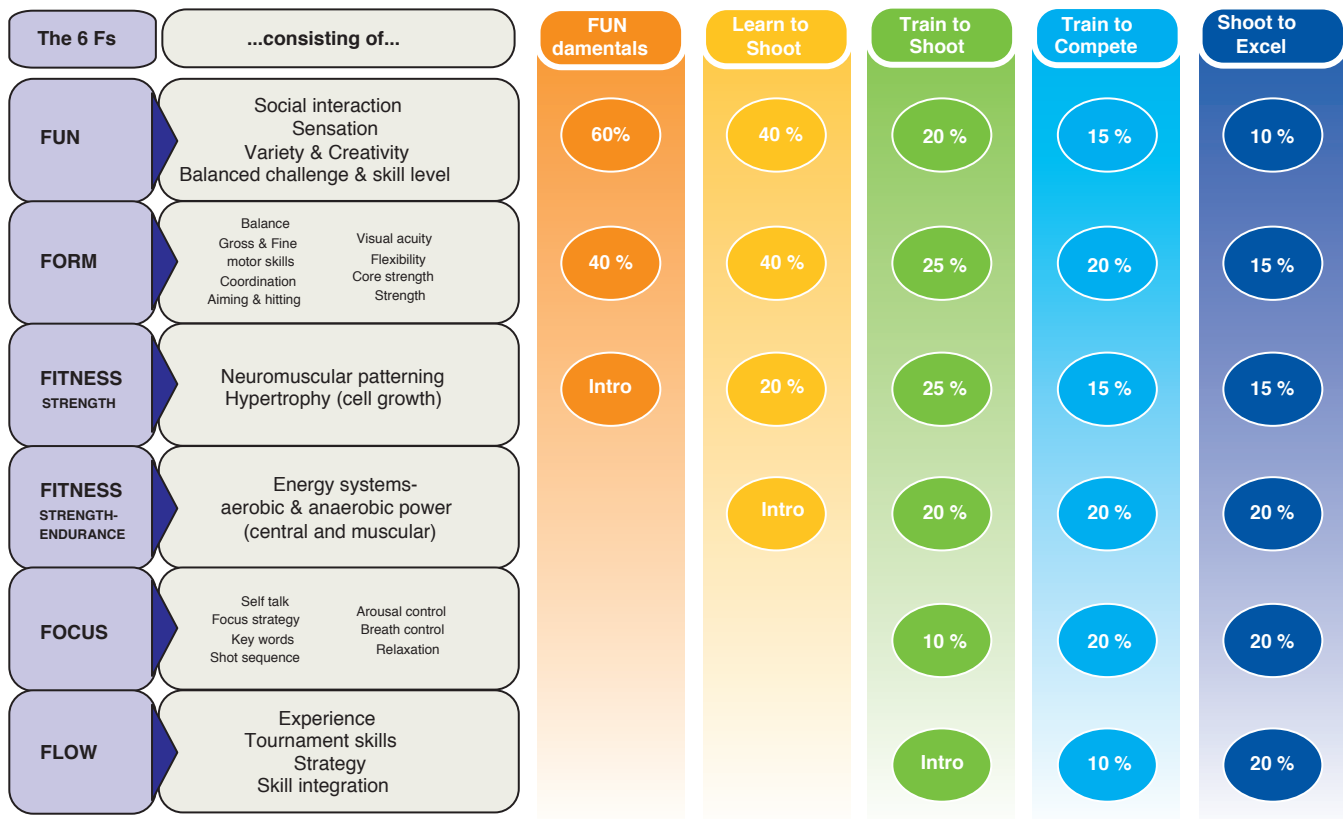
What is a “quality arrow”? One which is shot with care, focus on proper form, and attention to following the shot-making process, either in training or competition. If the archer is distracted, overly fatigued, or not concentrating on improvement, it is difficult to shoot a quality arrow.



## Closer Look: Balancing Physical, Motor and Mental Training Factors


The archery pyramid of Fun, Form, Fitness-strength, Fitness-endurance, Focus and Flow rest on a foundation of physical, motor and mental competences. These become increasingly integrated as the archer develops, so it is essential to understand the fundamentals and how to progressively introduce and train them. This diagram shows the components of these factors as well as recommended percent of training time in each of the LTAD stages. Note: these are guidelines. Extra time for remediation must be added if development was incomplete in preceding stage(s).

**% Training Time in Physical and Mental Factors Across LTAD Stages**



## Closer Look: Skill Development

Alongside physical and mental preparation, archery demands an extremely high degree of skill. The table below provides guidelines for the acquisition, consolidation and refinement of essential skills in each LTAD stage.

ARCHERY SKILL DEVELOPMENT								
Stage		FUNdamentals	Learn to Shoot	Train to Shoot	Train to Compete	Shoot To Excel		
Years in Sport		0 – 4 years	1 – 4 years	2 – 8 Years	4 – 10 years	7+ years		
Skill Development 		ACQUISITION (A) <small>Introduction of skill (movement patterning) Cognitive Stage</small>		CONSOLIDATION (C) <small>Stability of skill through practice (correct execution in variable conditions) Associative Stage</small>		REFINEMENT (R) <small>Fine tuning of skills (Minor improvements and creative solution under all conditions) Autonomous Stage</small>		
	NCCP Coaching Context	Instructor- Beginner		Instructor – Intermediate		Comp-Dev	Comp – HP	
Form	Posture	A	C	C	R	R	R	
	Stance	A	C	C	R	R	R	
	Grip	A	C		R	R	R	
	Finger hook on string	A	C		R	R	R	
	Raising bow arm	A	C		R	R	R	
	Draw	A	C	C	R	R	R	
	Anchor	A	C	C	R	R	R	
	Aiming	A	C	C	R	R	R	
	Shot Execution	A	C	C	R	R	R	
	Release	A	C	C	R	R	R	
Follow Through	A	C	C	R	R	R		
Equipment	Selection/Analysis		A		C	R		
	Basic Tuning		A	C	R			
	General Bow Maintenance		A	C	R			
	Arrow Assembly		A	C		R		
	Making Strings			A		C	R	
	Advanced Tuning			A		C	R	
	Equipment Setup			A		C	R	
	Backup/Spares					A	C	R
	Grip Customization				A	C	R	
	Tab/Release Customizing				A	C	R	
Cable/Cam Changes				A	C	R		
Mental Preparation	Breathing Control	A	C	R				
	Key Words	A	C	C		R	R	
	Automation of Form	A	A	C		C	R	
	Mental Rehearsal		A	C		R		
	Yoga or Relaxation			A		C	R	
	Stress Practice			A		C	R	
	Goal Setting basis:	Fun	Form	Focus	Focus and Flow	Flow		
Tournament Specific Skills	Security	A	C	R				
	Indoor Shooting	A		A	C	R		
	Outdoor Shooting		A		C	R		
	Match Shooting				A	C	R	
	Back Tension Release				A	C	R	
	Field, 3D		A		C	C	R	
	Unknown Distance		A		C	R		
	Weather Conditions				A	C	R	
	Altitude					A	C	R
	Written Shot Sequence		A		C	R		
World Cup					A	C	R	



## Closer Look: Archery Trainability and Definitions

The following information provides definitions of the skills and abilities shown on the target graphs (p 20 to 22) as well as other key skills and abilities needed in archery.

Definitions

**Abstract Thinking** – Thinking about processes, objects and events that may or may not have real world representation.

**Aerobic Endurance** - Ability to exercise for long durations using aerobic energy systems.

**Aiming/Hitting** - Hitting a target with an object.

**Agility** - The ability to move quickly in three dimensions while remaining in control of the movement.

**Balance** - Ability to remain upright while moving. Includes static balance and balancing while moving or gliding.

**Coordination** - Moving several parts of the body serially or simultaneously to achieve movement.

**Core Strength and Stability** - Strength of the core muscles of the trunk, including chest, back and abdomen, which provide an “anchor” for the effective use of arm and leg muscles.

**Fine Motor Skills** - Movements controlled by small muscles, e.g. hand or finger movements.

**Goal Setting** - The ability to set targets for future behaviours or outcomes.

**Gross Motor Skills** - Large movements of the limbs and body using multiple joints and muscle groups.

**Memory** - Ability to retain and recall instructions, information, and experiences.

**Mental Models** - Ability to understand and manipulate mental models of real-world processes.

**Speed 1** - Speed increases due to improvements in neuromuscular coordination.

**Speed 2** - Speed increases due to improvements in energy systems, anaerobic alactic and lactic.

**Strength 1** - Strength increases due primarily to increases in neuromuscular coordination, not muscle fiber growth.

**Strength 2** - Strength increases due primarily to increases in lean muscle mass- hypertrophy.

**Strength-endurance** - Muscular strength and endurance, allowing repeated static or dynamic muscular contractions with reduced levels of fatigue.

**Visual Acuity** - Ability to discriminate edges and see objects at various distances.

## Closer Look – Recommended Bow Weights

### Recurve Bow - Outdoor - Males

Recurve - M	Chrono Age	0-6 years	6-9 years	9-12 years	12-15 years	15-23+/- years	19+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	~10 lbs	~10-12 lbs	~ 12 lbs	15-16 lbs	16-18 to 20-24 lbs	16-18 to 20-24 lbs
Learn to Shoot	Sport Years		1 to 3	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		~ 10-12 lbs	16-18 to 20-24 lbs	20-24 lbs	16-18 to 20-24 lbs	16-18 to 20-24 lbs
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			20-25 lbs	25-30 lbs	35-40 lbs	35-40 lbs
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				28-32 lbs	35-40 lbs	35-40 lbs
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					36-42 lbs	40-48 lbs

### Recurve Bow - Outdoor - Females

Recurve - F	Chrono Age	0-6 years	6-8 years	8-11 years	11-15 years	15-18 years	18+ years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	~10 lbs	~10 lbs	~ 12 lbs	12-16 lbs	15-18 lbs	16-20 lbs
Learn to Shoot	Sport Years		1 to 2	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		~ 10 lbs	~ 12 lbs	12-16 lbs	18-22 lbs	20-26 lbs
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			20-22 lbs	24-28 lbs	26-32 lbs	28-34 lbs
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				26-32 lbs	32-36 lbs	36-42 lbs
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					32-38 lbs	36-42 lbs

NOTES: Coach should be able to see archer control peak weight at anchor position and archer should be able to demonstrate control for 60 arrows in FUNdamentals stage, 75 arrows in other stages.

**Compound Bow - Outdoor - Males**

Compound - M	Chrono Age	0-6 years	6-9 years	9-12 years	12-15 years	15-23+/- years	19+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	N/A	25-30 lbs 50%+	30-35 lbs 50%+	40-45 lbs 50%+	45-50 lbs 50%+	50+ lbs 50%+
Learn to Shoot	Sport Years		1 to 3	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		35 lbs 50%+	30-35 lbs 50%+	40-45 lbs 50%+	40-50 lbs 50%+	40-50 lbs 50%+
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			35-40 lbs 50%+	40-45 lbs 50%+	40-50 lbs 50%+	40-50 lbs 50%
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				40-45 lbs 50%+	40-50 lbs 50%+	45-50 lbs 50%+
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					45-50 lbs 50%+	55-60 lbs 50%+

**Compound Bow - Outdoor - Females**

Compound - F	Chrono Age	0-6 years	6-8 years	8-11 years	11-15 years	15-22+/- years	18+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	N/A	20 lbs 50%	30-35 lbs 50%+	30-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Learn to Shoot	Sport Years		1 to 2	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		20-30 lbs 50%+	20-35 lbs 50%+	30-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			30-40 lbs 50%+	25-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				30-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					40-45 lbs 50%+	40-45 lbs 50%+

NOTES: The first number is Peak Weight, the second is Hold Weight. "20 lbs 50%" means a Peak Weight of 20 lbs and a Hold Weight of 50% or 10 lbs. Coach should be able to see archer control peak weight at anchor position and archer should be able to demonstrate control for 60 arrows in the FUNdamentals stage and 75 arrows in other stages.

\*The difference between the bow weight and the hold weight is called the let-off. Depending on the bow manufacturer, the amount of let-off can change performance and hold weight. A higher let-off can make it easier to hold the bow and to aim.

## Closer Look – Recommended Bow Weights

### Recurve Bow - Indoor - Males

Recurve - M	Chrono Age	0-6 years	6-9 years	9-12 years	12-15 years	15-23+/- yrs	19+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	~10 lbs	~10-12 lbs	~ 12 lbs	15-16 lbs	16-18 to 20-24 lbs	16-18 to 20-24 lbs
Learn to Shoot	Sport Years		1 to 3	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		~ 10-12 lbs	~ 12 lbs	15-16 lbs	16-18 to 20-24 lbs	16-18 to 20-24 lbs
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			20-22 lbs	24-28 lbs	24-28 lbs	24-28 lbs
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				24-28 lbs	28-32 lbs	30-34 lbs
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					30-34 lbs	30-34 lbs

### Recurve Bow - Indoor - Females

Recurve - F	Chrono Age	0-6 years	6-8 years	8-11 years	11-15 years	15-22+/- yrs	18+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	~10 lbs	~10 lbs	~ 12 lbs	12-16 lbs	15-18 lbs	16-20 lbs
Learn to Shoot	Sport Years		1 to 2	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		~ 10 lbs	~ 12 lbs	12-16 lbs	15-18 lbs	16-20 lbs
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			20-22 lbs	24-28 lbs	24-28 lbs	24-28 lbs
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				24-28 lbs	28-32 lbs	30-34 lbs
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					30-34 lbs	30-34 lbs

NOTES: Coach should be able to see archer control peak weight at anchor position and archer should be able to demonstrate control for 60 arrows in FUNdamentals stage, 75 arrows in other stages.



**Compound Bow - Indoor - Males**

Compound - M	Chrono Age	0-6 years	6-9 years	9-12 years	12-15 years	15-23+/- years	19+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	N/A	30 lbs 50%+	30-35 lbs 50%+	40-45 lbs 50%+	45-50 lbs 50%+	50+ lbs 50%+
Learn to Shoot	Sport Years		1 to 3	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		30-35 lbs 50%+	35-40 lbs 50%+	40-45 lbs 50%+	40-50 lbs 50%+	50-60 lbs 50%+
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			35-40 lbs 50%+	40-45 lbs 50%+	40-50 lbs 50%+	50-60 lbs 50%+
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				40-45 lbs 50%+	40-50 lbs 50%+	50-60 lbs 50%+
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					40-50 lbs 50%+	55-60 lbs 50%+

**Compound Bow - Indoor - Females**

Compound - F	Chrono Age	0-6 years	6-8 years	8-11 years	11-15 years	15-22+/- years	18+/- years
FUNdamentals	Sport Years	0 to 1	0 to 2	0 to 3	0 to 4	0 to 4	0 to 4
	Bow Weight	N/A	20 lbs 50%	30-35 lbs 50%+	30-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Learn to Shoot	Sport Years		1 to 2	1 to 3	1 to 4	1 to 4	1 to 4
	Bow Weight		20-30 lbs 50%+	20-35 lbs 50%+	30-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Train to Shoot	Sport Years			2 to 4	3 to 6	2 to 8	2 to 8
	Bow Weight			30-40 lbs 50%+	25-35 lbs 50%+	35-40 lbs 50%+	35-40 lbs 50%+
Train to Compete	Sport Years				4 to 6	4 to 8	4 to 10
	Bow Weight				30-35 lbs 50%+	35-40 lbs 50%+	35-45 lbs 50%+
Shoot to Excel	Sport Years					7 to 10	7+
	Bow Weight					40-45 lbs 50%+	40-45 lbs 50%+

NOTES: The first number is Peak Weight, the second is Hold Weight. "40 lbs 50%" means a Peak Weight of 40 lbs and a Hold Weight of 50% or 20 lbs. Coach should be able to see archer control peak weight at anchor position and archer should be able to demonstrate control for 60 arrows in the FUNdamentals stage and 75 arrows in other stages.

\*The difference between the bow weight and the hold weight is called the let-off. Depending on the bow manufacturer, the amount of let-off can change performance and hold weight. A higher let-off can make it easier to hold the bow and to aim.



Archery Canada  
**Long-Term Archer Development Model**