



Competition-Coaching Introduction Advanced (T2T)

Step 1:

Setting the scene



Reference Material for Dryland Workshop



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1.1 Stages of Long Term Athlete Development (LTAD)

Cross-country skiing is a late specialization sport. During the first three stages of Canada's LTAD model, children grow and improve within the sport through programs permitting a broad exposure to activities that develop overall motor and sport skills. Following the first three stages, there is a transition to either further development and excellence in cross-country skiing or life-long participation in skiing and/or other sports at the recreational or less competitive level. For athletes who wish to pursue excellence, increasing specialization in cross-country skiing and an expanding focus on competition permit them to mature athletically and aspire to national and international podiums. Regardless of the level of excellence or sport-mastery achieved however, participation in cross-country skiing – a "sport for life" - can enhance the health, fitness and mental well-being of Canadians of all ages.

1.1.1 The LTAD Framework for Cross-Country Skiing

- ☐ The first three stages encourage physical literacy and "Sport for All":
 - 1. Active Start
 - 2. FUNdamentals
 - 3. Learning to Train
- □ The next four stages focus on development and competitive excellence:
 - 4. Training to Train
 - 5. Learning to Compete
 - Training to Compete
 - 7. Training to Win
- □ The final stage encourages life-long physical activity:
 - 8. Active for Life

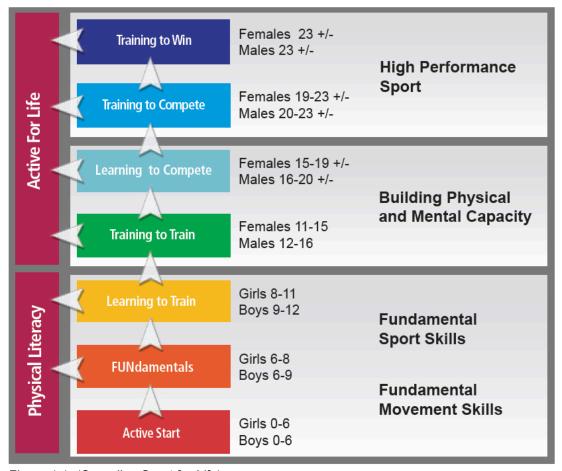


Figure 1.1 (Canadian Sport for Life)

1.1.2 The LTAD Stages for Cross-Country Skiing

To promote a healthy and logical development for each athlete, the LTAD model identifies sequential stages for training and competition that respect his/her physical, mental and emotional development. This approach encourages lifelong physical activity for athletes of all levels of ability and disability. It also provides an effective route for athletes to pursue excellence up to and including the national and international levels of competition.

Following is an overview of the eight LTAD stages:

1. Active Start (Boys and Girls 0-6)

- This is an important period for acquiring the fundamental movement skills that lay the foundation for more complex movements, thereby preparing children for a physically active lifestyle.
- Young children should be physically active through active play, and encouraged to begin cross-country skiing at an early age.

2. **FUNdamentals** (Boys 6-9 and Girls 6-8)

Fundamental movement skills are mastered, motor development emphasized and basic cross-country ski skills learned. For optimal sport specific acquisition, all basic ski skills, both classic and skating, should be learned before the end of this period.

3. Learning to Train (Boys 9-12 and Girls 8-11)

- This is an important period for motor development and window of optimal trainability for motor-coordination. Children are developmentally ready to acquire the general sport skills that will be the cornerstone of their athletic development.
- > Fitness becomes increasingly important.

4. Training to Train (Males 12-16 and Females 11-15)

- > This is an important period for developing aerobic capacity, which is especially critical for cross-country skiing (a lot of skiing at low intensity!).
- > Social and emotional considerations are very important. Team building, group interaction and social events should be emphasized.

5. Learning to Compete (Males 16-20 (+/-) and Females 15-20 (+/-))

- > Fitness preparation, sport and individual specific skills are developed. The development of self awareness and independence should be emphasized.
- > Training and racing should be integrated gradually and seamlessly into the overall timetable and lifestyle of the aspiring competitive athlete.

6. Training to Compete (Males 20-23 (+/-) and Females 19-23 (+/-))

- ➤ This is an important period for individualized fitness preparation. Fitness and medical monitoring is increasingly sophisticated, and sport and individual specific skills are mastered.
- Self-awareness and independence become increasingly important.
- Athletes learn to compete internationally.

7. Training to Win (Males 23 (+/-) and Females 23 (+/-))

- During this stage athletes focus on high performance and undertake multi-year preparations for major events (i.e. Olympics, World Championships).
- High performance sport specialist support is optimized, as is fitness and medical monitoring.
- > All aspects of training and performance are highly individualized.
- Podium performances are the goal.

8. **Active for Life** (This stage can be entered at any age)

➤ There is a better opportunity to be "Active for Life" if physical literacy is achieved before the "Training to Train" stage.

"The Learning to Train and Training to Train stages are the most important stages of athletic preparation. " (Canadian Sport for Life)

1.1.3 Training to Train (T2T) Stage of Development

Optimal aerobic trainability begins with the onset of Peak Height Velocity (PHV), the major growth spurt during maturation. The Training to Train stage is therefore very important for developing aerobic capacity, which is especially critical for the sport of cross-country skiing. This means athletes at this stage of development will be doing a lot of skiing at low intensity!

Objectives:

✓ To build an aerobic base, develop speed and strength and further develop and consolidate sport specific skills.

Optimal windows of trainability:

- ✓ Aerobic capacity development.
- ✓ Strength development (females).
- ✓ Speed development for females (at the start of this stage) and males (at the end of this stage).

The goals include:

- ✓ Ensuring social and emotional considerations are addressed by placing an appropriate emphasis on team-building, group interaction and social activities.
- ✓ Ensuring the training focus is tied to individual stage of maturation.
- ✓ Making aerobic training a priority after the onset of PHV while maintaining or further developing levels of skill, speed, strength and flexibility.
- ✓ Emphasizing flexibility training given the rapid growth of bones, tendons, ligaments and muscles.
- ✓ Frequent musculoskeletal evaluations during PHV.
- ✓ Further developing and refining all sport-specific skills.
- ✓ Refining all ski techniques.
- ✓ Developing mental, cognitive and emotional skills.
- ✓ Introducing systematic medical monitoring.
- ✓ Further developing and refining sport specific skills.
- ✓ Sport specific training six times per week in the ski season with some complementary training; maintaining training six times per week in the off-season including incremental specific training with the major emphasis still being on complementary sports.
- ✓ Narrowing the focus to two sports based on predisposition.
- ✓ Further developing ancillary capacities.

- ✓ Planning and preparing for a best performance at one event; utilizing single and double periodization as the optimal framework of preparation.
- ✓ Ensuring the focus during competitions is on learning the basics as opposed to competing, although athletes should ski to win and to do their best.
- ✓ Introducing free weights.
- ✓ Educating athletes about the nutritional needs of competitive cross-country skiers.
- ✓ Developing skills to cope with the physical and mental challenges of competition.
- ✓ Integrated mental, cognitive and emotional development.
- ✓ Appropriate adjustment of nutritional intake to accommodate increased training load.
- ✓ Introducing basic sport science and sport medicine support.

<u>Psychological training</u>:

Objectives:

- ✓ Understand personal specific mental skill needs.
- ✓ Be able to set realistic, specific goals for the season.

To-do list:

- ✓ Introduce mental performance monitoring for competitive situations.
- ✓ Further develop pre-race preparation skills.
- ✓ Develop a range of tactical skills.
- ✓ Develop time management skills.
- ✓ Further develop the mental skills of:
 - Constructive self-talk.
 - Imagery.
 - Confident behaviour.

1.2 CCC Athlete Development Grid

1.2.1 Training to Train - Part 1: Boys 12-14, Girls 11-13

COACH LEVEL	NCCP Competition Coaching Introduction (CCI) – Advanced (T2T)
FACILITIES	 Varied terrain, challenging technical trails groomed tracks for skating and classic Day lodge in stadium area Access to adequately equipped weight room
TECHNIQUE	 refinement of all skiing techniques (both sides for offset and two skate techniques) learn to better adapt technique to the terrain learn dryland techniques (ski walking, striding) learn basic biomechanical principles learn to adapt technique to all snow conditions and a variety of trail surfaces and types improve downhill skills optimize running technique can explain and demonstrate notions of weight shift, balance, coordination and amplitude, and how they affect performance chooses proper technique according to speed and track conditions balance and weight shift are well mastered for all techniques:
ENERGY SYSTEMS	 Window of Optimal Trainability for aerobic capacity training Window of Optimal Trainability for anaerobic alactic power and capacity (≤ 20 sec.) (only at the end of sub-stage for males) Start of Window of Optimal Trainability for aerobic power (following PHV, likely females only in this sub-stage) mixed aerobic activities, specific and non specific females can begin some anaerobic lactic power training (20-60 sec. intervals)
STRENGTH AND FLEXIBILITY	 Females: Start of Window of Optimal Trainability for strength (at onset of menarche) Incorporate more time in the Weight Room Pre Puberty work on learning and perfecting technique Peak Height Velocity is a good time to work on strength as learning technique at this time is not optimal. Do not try to learn any new difficult technique

 emphasis on upper body strength as smaller muscles recover faster include some endurance strength work, (skate without poles double poling, kayaking) Emphasize flexibility due to growth spurts and generally decreasing flexibility; more frequent stretching is required to prevent damage to muscles and tendons Continue to introduce race tactics Introduce sport rules and ethics Develop mental preparation: appropriate attitude to competition being the best you can be, belief in the process Use of mental skills to control pre-competitive emotions
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Use of mental skills to control pre-competitive emotions
 Promote an understanding of the role of practice towards achieving goals (outcome, performance, process; short/long term)
 Profile and promote awareness of mental qualities of racing different distances
Continue to develop focus/refocus and concentration skills (imagery)
• Continue to develop self-control skills (breathing, biofeedback identify negative and positive thoughts, patience, problem-solving)
Develop post-race analysis skills
Continue to develop cultural and lifestyle habits
Introduce the use of training logs for competitive season
Introduce skills of time management
Promote positive communication
Continue to promote teamwork and personal interaction skills
 Introduce self- discipline and personal responsibility skills (e.g. awareness of Peak Height Velocity and windows of optima trainability)
Introduce travel strategies
Emphasis on personal improvement and personal best
Race on regional and provincial cup series, provincial youth champs and Games, Eastern or Western Canadians if close to home
• Begin racing after 4 weeks of training on snow
Start to narrow competitive focus to two sports
Adapt race distances to the "time" guidelines for the age grouping
Cap total distance raced over weekends to about 10km when more

than one race Use all the official race formats Continue to include a few "fun" events that emphasize team effort and skills (skills races) Use slightly declining slope for sprint races to develop speed and balance Acknowledge achievements/results for each YOB (medals, ribbons, etc) NB: Early season races should be at the shorter end of the range. The maximum distance should only be raced a few times towards the end of the season. When establishing a race distance or deciding which race skiers will enter, take into account: the ability and fitness of the skiers; the difficulty of terrain; the elevation (altitude) of the race site: and whether the skiers are in the first or second year of their age class. The objective is to have skiers race at high speed with good technique, rather than struggle to finish the distance. Keep group in touch year round (some summer activities) Emphasize team building Specific high end racing equipment for classic and skating (ideally OTHER 2 pairs of skis per style) **FACTORS** Integrate roller skiing in both styles more frequently(one pair for each style) Educate and train basic ski prep skills

1.2.2 Training to Train - Part 2: Boys 14-16, Girls 13-15

COACH LEVEL	NCCP Competition Coaching Introduction (CCI) – Advanced (T2T)
FACILITIES	 Varied terrain, challenging technical trails groomed tracks for skating and classic Day lodge in stadium area Access to adequately equipped weight room
TECHNIQUE	 refinement of all ski techniques improve technique adaptations to all snow, track and terrain conditions focus on performance related technique adaptations (tempo, snap, range) can maintain efficient technique at race pace from start to finish* adequate use of rhythm, amplitude and glide adapted to track conditions* Standardized functional movement screen (physio. assessment)
ENERGY SYSTEMS	 Window of Optimal Trainability for aerobic power, past PHV Males only: Last phase of Window of Optimal Trainability for anaerobic alactic power and capacity (≤ 20 sec.), speed training Further develop aerobic capacity Boys can begin some anaerobic lactic power training (20-60 sec. intervals)
STRENGTH AND FLEXIBILITY	 Window of Optimal Trainability for strength (females start immediately after PHV and males start 12-18 months past PHV) emphasis on upper body strength start to increase specific endurance strength work (skate without poles, double poling) Incorporate more time in the Weight Room Pre Puberty work on learning and perfecting technique Peak Height Velocity is a good time to work on strength as learning technique at this time is not optimal. Do not try to learn any new difficult technique Should have the appropriate movement patterns by this time Emphasize flexibility due to growth spurts and generally decreasing flexibility; more frequent stretching is required to prevent damage to muscles and tendons Goal is to maintain good flexibility, as when younger

Continue to introduce race tactics Introduce sport rules and ethics Observe different individuals race tactics Introduce use goal setting skills in conjunction with training and racing. • Introduce imagery skills (for technique, self-confidence, for arousal control) Continue to develop focus/refocus and concentration skills MENTAL SKILLS Continue to develop self-control skills (breathing, biofeedback, identify negative and positive thoughts, patience, problem-solving) Develop post-race analysis skills Continue to develop cultural and lifestyle habits Promote the use of training logs for competitive season Promote use of time management Continue to promote teamwork and personal interaction skills Promote self- discipline and personal responsibility skills Emphasis on personal improvement and personal best • Compete at regional and provincial cup series, provincial youth champs and Games, Eastern or Western Canadians Compete at National championships to acquire trip experience at a big event Begin racing after 4 weeks of training on snow Narrow competitive focus to two sports Create race situations that develop tactics and ability to stand ground in mass starts events, start and finish (scramble zones, turns near finish, etc) Limited travel to races; some of yearly racing should be one day events; regional and provincial circuit races; not more than one COMPETITION major championship per year (i.e. Nationals) Adapt race distances to the "time" guidelines Use all the official race formats • Continue to include a few "fun" events that emphasize team effort and skills Acknowledge achievements/results for each YOB (medals, ribbons, etc) NB: Early season races should be at the shorter end of the range. The maximum distance should only be raced a few times towards the end of the season. When establishing a race distance or deciding which race skiers will enter, take into account: the ability

	and fitness of the skiers; the difficulty of terrain; the elevation (altitude) of the race site; and whether the skiers are in the first or second year of their age class. The objective is to have skiers race at high speed with good technique, rather than struggle to finish the distance.
OTHER FACTORS	 Further emphasize team building Provide regular social activities integrating both males and females Specific high end racing equipment for classic and skating (minimum of 2 pairs of skis per style, powder and klister) Increase rollerski training (one pair for each style) Educate and train more advanced ski prep skills

1.2.3 Growth and Development Considerations during the T2T stage

General Remarks

- ➤ Period where major growth spurts occur; in each gender, large differences in physical maturation may be observed in individuals of the same chronological age; in general, girls develop earlier than boys
- ➤ During this period, there is often a large difference in maturity between boys and girls
- Acquires moral concepts, values and attitudes that make it possible to relate meaningfully to society; positive role models are important
- ➤ Opinion of friends tends to be more important than that of the coach; athletes want to look like or be perceived as competent performers
- This is a period of major change during which athletes are likely to challenge authority, be very critical, question decisions and ask for justification
- ➤ Competition becomes increasingly important to some athletes; time devoted to general training should be greater than time spent training specifically for a sport or time spent competing

Psychosocial

- > It is important to separate boys and girls for activities and competition
- > Emotional instability may be observed because of the rate at which physiological changes occur
- ➤ Shows a greater desire for independence; this can be a time of rejection of parental authority and, in general, a period when there is a high degree of confrontation with adults
- ➤ Develops close relations with individuals of both sexes; enjoys being more independent and having more responsibility; a great deal of interest in sexuality is observed toward the end of this period
- ➤ This period is important for the development of values such as respect for others, fair play and a work ethic

Learning

- ➤ Begins to think like an adult; it is important to take into account the different maturity level between boys and girls; interests and abilities differ between the genders; challenges can be very appealing
- ➤ Needs change on a regular basis; is highly curious; capacity to concentrate increases (can stay focused for 20 minutes or more at a time); increasingly capable of abstract thinking
- This is a good period to consolidate the development of fine motor skills, to teach

more complex tactical notions, and to encourage decision making in specific situations

Physical

- ➤ Girls: The development of secondary sexual characteristics begins at approximately 11-11.5 years of age. On average, the growth spurt begins shortly after that. Maximal growth rate (or peak height velocity, PHV) is normally observed between 11.5 and 12.5 years, and menarche (first menstruation) occurs approximately one year after PHV. During this period, body fat content tends to increase progressively, and typical female body forms (hips) appear because of the effect of hormones. As a result of these changes, performance often plateaus or may even decline for a short period of time. In addition, for a period of several months following menarche, girls may have difficulty sustaining heavy training loads. Girls should be counselled that this phenomenon is normal and that their performance will continue to improve after this temporary phase.
- Boys: The development of secondary sexual characteristics occurs progressively at approximately 11 years of age. On average, the growth spurt begins at age 13, and PHV is reached at age 14-15. Significant gains in muscle mass and in strength typically occur one year after PHV (i.e. approximately ages 15-16) because of higher levels of testosterone. This is a good time to initiate strength training with heavier loads if this athletic ability is important in the sport.
- ➤ During the growth spurt, feet and hands tend to grow first, followed by the legs and arms; long bones are fragile during this time; growth is accompanied by an increase in body weight throughout the period.
- ➤ As a result of the rapid growth spurts that occur during PHV, body parts can be disproportionate; this can have a direct effect on coordination and the ability to perform certain skills that had already been well mastered.
- > This period is well suited for the development of aerobic fitness, as well as flexibility.

Preferences

- Enjoys challenges and the opportunity to accomplish individual feats
- Accomplishment of actions that are likely to be looked at or admired by peers/friends
- ➤ Activities that contribute to the development of fine skills/dexterity and that do not require too much strength, team games, situations where some form of competition exists

To Avoid

➤ Repetition of all-out efforts lasting between 20 and 120 seconds before or during PHV; work against high resistance; prolonged aerobic endurance efforts that involve impact on the joints (i.e. running on a hard surface such as asphalt)

- ➤ High mechanical stress (compression forces) on the long bones and the backbone, e.g. lifting heavy weights
- > Programs where the number of competitions is greater than the number of practices
- > Pressure to perform
- > Negative competitive experiences

Suggestions

- ➤ Time when athletes are actively involved in activities during a practice should be as high as possible
- Acquisition of more complex or sport-specific techniques; explanations can be more elaborate where appropriate; a high number of repetitions during drills is possible
- ➤ Give the opportunity to take decisions and to problem-solve
- ➤ Correct execution of movements must be emphasized if strength training is performed
- ➤ Appropriate supervision of training activities is important to prevent unnecessary risks that adolescents may take
- ➤ Games emphasizing skill and dexterity
- ➤ Opportunities to meet or interact with sport role models (athletes or coaches); competitions or tournaments that involve trips; social activities among the team/training group
- ➤ When an athlete who has reached puberty experiences pain in the joints (e.g. shoulders, elbows, knees) or if he/she now seems to have difficulty completing workouts that previously posed no difficulty, training loads (amount-frequency-intensity) may have to be decreased to avoid undue stress on the athlete's body
- ➤ Depending on the maturity level, involvement in roles such as officiating or leading certain activities (e.g. leading a warm-up or cool-down)

1.3 Functions and tasks as a coach

This section outlines key functions that coaches will likely be responsible for when they work with athletes in the T2T stage of development.

My Coaching Situation

- ➤ Coordinate with the other coaches in the club to ensure a vertically integrated and seamless progression of opportunities for all the athletes in the program.
- ➤ Coordinate with regional and/or provincial cross-country ski programs to ensure an integrated and seamless regional and provincial sport system.
- Determine a plan for the season for team that reflects the vision and philosophy of the overall club program.
- Develop yearly training plans and seasonal plans for individual athletes.
- Determine the objectives of the practice sessions and/or activities.
- Put together a plan for the practice sessions and training camps.
- Encourage and educate athletes on physical health monitoring and routines.
- Put together a plan for a series of practice sessions and educational activities.
- > Determine a plan for recruiting and mentoring developing coaches to work with T2T athletes.
- Plan for and lead parents meetings as appropriate.
- ➤ Plan for and lead meetings of the support team coaches and other volunteers (my helpers!).
- > Evaluate the impact and effectiveness of the program for which I am responsible.

Managing the Program: In My Coaching Situation, I...

- Arrange for appropriate grooming and track setting for practice sessions.
- ➤ Keep relevant medical information and emergency contact information for each athlete.
- Keep an inventory of team equipment and waxes.
- ➤ Ensure there is appropriate social time built into the program.
- Manage the equipment and waxes.
- Manage the team uniforms.
- ➤ Ensure safety considerations are met with rollerskiing and other dryland training activities.
- Coordinate or oversee the coordination of transportation to/from competitions and special activities.
- Interact with parents.

- Interact with other coaches, volunteers and assistants.
- Interact with officials at competitions.
- Recruit athletes for the program.
- > Recruit and train the support team (coaches and other volunteers).

Support to Athletes in Competitive Experiences: In My Coaching Situation, I...

- Determine an appropriate race schedule for the development of each athlete.
- ➤ Ensure accommodations are booked or billets coordinated for my team if the location of the competition requires an overnight stay.
- Ensure my athletes are all registered correctly for their events before the registration deadline, and all requirements regarding waiver forms are met.
- Make sure facilities and equipment are safe.
- > Develop competition plan with the athletes.
- > Emphasize on personal improvement and personal best.
- Provide opportunities to Compete at regional and provincial cup series, provincial youth champs and Games. Eastern or Western Canadians
- Observe different individuals race tactics
- Supervise physical and mental preparation before competition (warm-up).
- Manage the athletes at the competition.
- Keep the athletes focused on the task.
- Manage the parents and assistant coaches involved with your team at the event.
- Make sure the athletes have appropriate equipment for the competition.
- Make sure the athletes have appropriate clothing for the weather conditions.
- Ensure the ski preparation support is appropriate for the event.
- Make frequent adjustments to meet the needs of unexpected situations.

Support to Athletes in Fitness and Skill Development: In My Coaching Situation, I ...

- ➤ Ensure the environment is safe and appropriate, and make adjustments as trail and weather conditions dictate.
- Introduce use goal setting skills in conjunction with training and racing.
- Introduce imagery skills (for technique, self-confidence, for arousal control).
- Improve technique adaptations to all snow, track and terrain conditions.
- Focus on performance related technique adaptations (tempo, snap, range).

- Get the ski area and any necessary equipment ready for the activity.
- Ensure that the athletes are notified of what is needed in advance so that they bring appropriate training equipment and clothing.
- Assist with ski preparation as necessary.
- Motivate the athletes to practice and learn.
- > Ensure the fitness and skill development activities are appropriate for the athletes.
- Adjust instructions to meet the needs of the athletes.
- Analyze technical errors/problems.
- Recommend corrective measures.
- Give feedback to athletes.
- Direct/supervise warm-up activities.
- Coordinate activities to develop team spirit.
- Teach advanced techniques and technical progressions.
- Teach tactics for competitions.
- Demonstrate technical skills.
- Use video feedback to analyze and provide feedback to athletes
- Teach the competition rules of cross-country skiing.
- Administer basic first aid as needed.

Social Support to Athletes: In My Coaching Situation, I...

- Teach values through sport.
- Develop activities to improve self-esteem.
- Speak to each athlete individually at least once during a practice.
- Listen to athletes.
- Motivate athletes to learn.
- Encourage athletes to develop an appropriate work ethic.
- Develop athlete self-reliance and independence.
- Help develop an athlete's self-esteem.
- > Have a positive influence on team spirit.
- Promote and model ethical behaviour.
- Manage conflict.
- > Encourage the athletes to persevere.
- Advise parents about their involvement.

- > Promote further participation in sport.
- > Ensure activities are fun.
- > Ensure all participants are given the opportunity for equal involvement.
- > Give equal time to all athletes.
- Organize/coordinate recognition/awards ceremonies/social activities.

NB: T2T athletes begin to think like adults; it is important to take into account the different maturity level between boys and girls; interests and abilities differ between the genders; challenges can be very appealing.

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