CyclingCANADACyclisme

National Coaching Certification Program

Ready to Race!

Introduction to competition

Track Skills and Tactics

CyclingCANADACyclisme

Canada's Cycling Associations

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Cycling Canada thanks the following for their contribution to this project:

CC NCCP Working Group- Mathieu Boucher, Rob Good, Paul Jurbala, Philip Abbott.

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Table of Contents

Ready to Race! Cycling Introduction to Competition
Program Objectives

The Introduction to Competition Context

Introduction to Competition is the context for coaches who will primarily work with new competitive cyclists at the community and club level. These athletes will likely be in the Learn to Train to Train to Train stages of LTAD, although the context could apply to any new racer of any age. We expect these athletes to have basic but developed cycling skills and the desire to begin competing within a structured training and competition program. They should have passed through an entry-level Community Initiation or non-competitive Instruction program to help them develop the basic skills.

The key objectives for an Introduction to Competition Cycling Coach are therefore:

- Ensure participants have fun, safe, stage-appropriate experiences that make them want to continue in competitive cycling;
- Introduce participants to regular training 3 to 6 times per week;
- Introduce participants to competition in multiple cycling disciplines, within club, school or basic provincial-level competition programs;
- Assist the development of cyclists passing through their growth spurt, and be ready to modify training and competition accordingly, consistent with the LTAD Model;
- Create a foundation to prepare participants to advance to a more specialized development level of training and competition as they develop.

Introduction to Competition cyclists will usually participate 3 to 6 times per week for an entire season. The focus of the program will be on having participants develop skills and abilities needed for successful club-level competition. The theme of the course is “Ready to Race: Preparing for Competitive Success”.

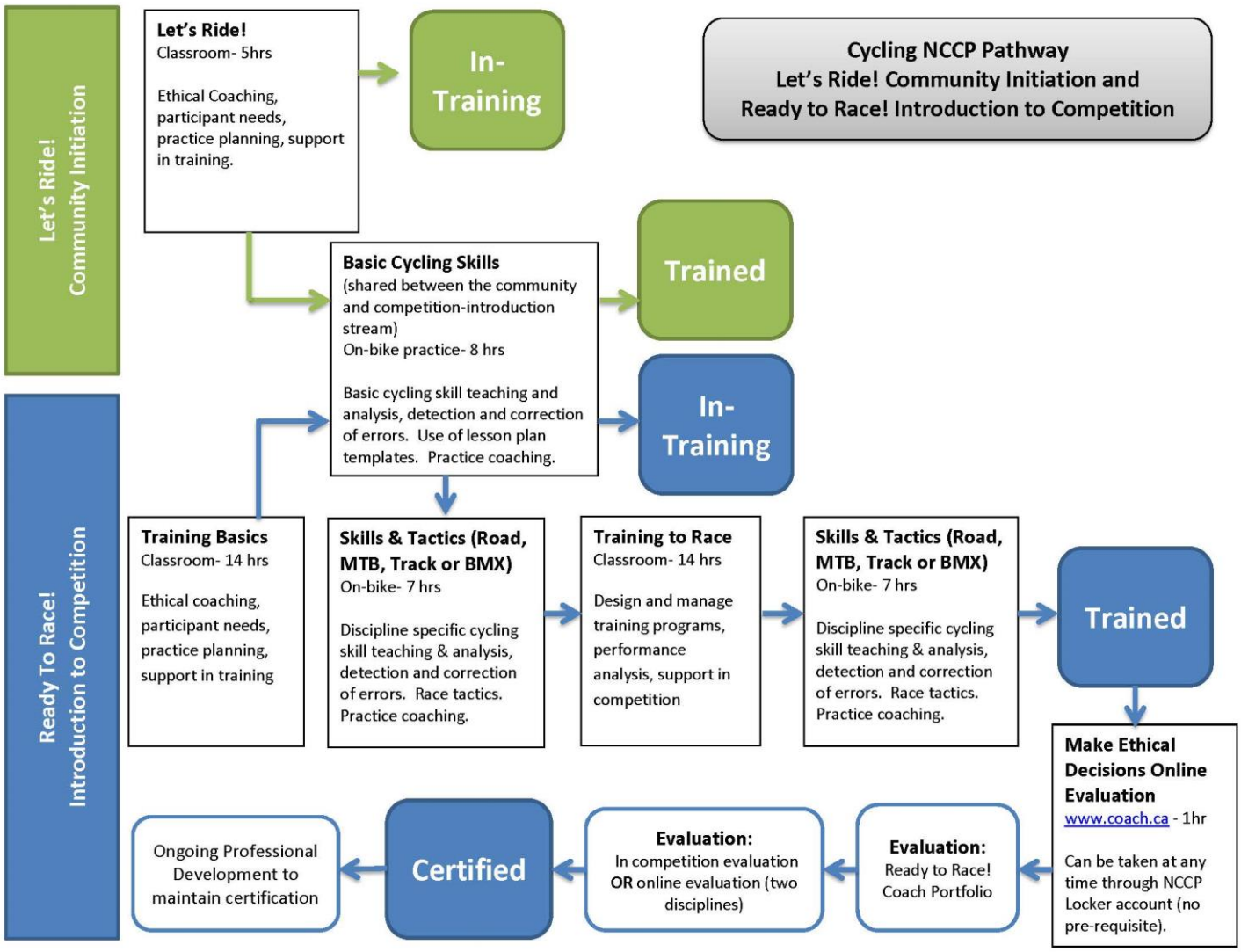
Coaches will typically be volunteers who are operating within a club program as specialist youth/introduction coaches. Some coaches may be professional, paid coaches operating in a club or providing coaching from their business.

The Introduction to Competition coach development program emphasizes multi-sport and multi-discipline development of cyclists. Consequently, coaches in this program will participate in a Basic Cycling Skills Workshop that will focus on teaching, analyzing and correcting performance skills, and then take two discipline-specific skills Workshops, which will introduce discipline-specific skills as well as basics of race tactics. Coaches may select any two of MTB, BMX or Road skills Workshops. In addition, coaches will take two “classroom” learning sessions to develop their skills in areas including ethical decision-making, practice planning, sport program design, and supporting athletes in training and competition. (There is the possibility of delivering parts of these learning sessions through alternate means such as mentorship, on-line education, etc so the term “classroom” is used only to differentiate them from the Skills Workshops.) The

learning sessions may be taken before or after the skills Workshops, adding flexibility to the program. After each block of learning, coaches will complete evaluation activities to attain certification.

After certification, there will be opportunities to extend coach knowledge and competence through participation in advanced gradations of the program. Options will include coach participation in the third skills Workshop (Road, MTB or BMX) with Track, Downhill and Cyclo-cross skills Workshops planned for the future. Participation in professional development and learning activities, including but not limited to the advanced gradations, will be required for the coach to maintain certification.

This pathway shows the requirements for both Cycling's Community Initiation and Introduction to Competition contexts. Note that the Basic Cycling Skills module is shared between the two contexts.



Outcomes for the Cycling Introduction to Competition Program

The Introduction to Competition program consists of five independent sessions. The following are the learning outcomes and criteria for each Workshop session.

Ready to Race! (Cycling Introduction to Competition) Training Basics – 14 hours

Ethical coaching:

- *Reflect on the importance of behaving respectfully toward participants, officials, parents, and spectators;*
- *Identify key ethical issues in common situations that can be encountered in the context of competitive cycling, including doping;*
- *Describe a course of action for dealing with the situation that is consistent with the values and philosophy of the NCCP;*
- *Clearly describe doping control procedures, rules, consequences and risks associated with doping.*

Practice planning:

- *Set an appropriate structure for the practice, including warm-up, skill development, physical preparation, cool-down, etc;*
- *Be able to modify training sessions appropriately based on developmental, physical and environmental factors;*
- *Identify risk factors that may be encountered in training and competition;*
- *Develop an Emergency Action Plan (EAP).*

Providing support to athletes in training:

- *Know the basic equipment needed for cycling and how to use it safely;*
- *Verify that facilities and equipment pose no safety risks;*
- *Coach an appropriately structured and organized training session using a practice plan listing clear goals, activities, and elements (eg cool-down, hydration);*
- *Explain activities, and provide feedback, in a way that is consistent with the guidelines set for the age group within the cycling LTAD model;*
- *Select activities and deliver feedback in a way that promotes self-esteem;*
- *Understand and demonstrate basics of working with cyclists with a disability (AWAD).*

Providing support to athletes in competition:

- *Explain the fundamental rules that govern the activity;*
- *Provide advice on eating and drinking before, in and after competition and training;*

- *Prepare athletes for competition by assisting them to follow a pre-race plan including preparation of equipment, nutrition, tactical and mental preparation and warm-up activities;*
- *Provide advice and feedback at the competition venue in a way that is consistent with the guidelines set for the age group within the cycling LTAD model and in a way that promotes self-esteem;*
- *Behave respectfully toward the participants, officials, parents, and spectators.*

Ready to Race! (Cycling Introduction to Competition) Training to Race – 14 hours

Design a Sport Program/Practice Planning:

- *Understand and apply key concepts in physical training for cyclists, including physical performance factors (i.e. flexibility, energy systems), training principles, etc;*
- *Understand and apply key concepts in mental training for cyclists, including ideal performance state, and basic techniques, such as relaxation, self-talk, etc;*
- *Design a training session that demonstrates understanding of cycling LTAD stage-appropriate activities and balances physical, mental, tactical and other needs;*
- *Design effective microcycles (weekly programs) that promote cyclist development, consistent with the cycling LTAD model;*
- *Modify daily and microcycle plans based on athlete ability and environmental factors (weather, etc);*
- *Design and deliver a periodized seasonal training and competition program based on the cycling LTAD model;*
- *Use a multi-discipline and multi-sport approach consistent with the cycling LTAD model in design of the program;*
- *Use basic metrics (eg training:competition ratio, indices of training intensity, etc) to monitor and promote athlete development and modify program as needed;*
- *Use basic physical performance tests including use of heart rate monitor to obtain data;*
- *Use Awareness and First Contact stages in design of programs for AWAD.*

Manage a Sport Program

- *Manage club/team logistics including basic finances, competition selection and athlete selection;*
- *Communicate effectively with participants, parents, and organizations;*
- *Use metrics and assessments to report on athlete progress.*

Basic Cycling Skills Workshop – 8 hours

Analyze Performance

- *Analyze stages in performance of basic cycling skills, using a template;*

- *Use an observation plan and appropriate observation strategies to detect skill performance;*
- *Explain activities, and provide feedback, in a way that is consistent with the guidelines set for the age group within the cycling LTAD model;*
- *Teach basic riding skills and know how to identify and correct errors in skill performance.*

Skills and Tactics Module: Track – 7 hours

Providing support to athletes in competition:

- *Explain the fundamental rules that govern Track racing;*
- *Provide advice on eating and drinking before, in and after competition and training;*
- *Provide advice on basic Track racing tactics;*
- *Prepare athletes for competition by assisting them to follow pre-race and post-race plans including preparation of equipment, nutrition, tactical and mental preparation, warm-up and cool-down and evaluation activities;*

Analyze Performance

- *Identify and correct errors in Track positioning if they exist;*
- *Analyze stages in performance of Track cycling skills, using a template;*
- *Use an observation plan and appropriate observation strategies to detect skill performance;*
- *Explain activities, and provide feedback, in a way that is consistent with the guidelines set for the age group within the cycling LTAD model;*
- *Teach Track riding skills and know how to identify and correct errors in skill performance;*
- *Identify and correct errors in tactical performance.*

Skills and Tactics Workshop: MTB – 7 hours
Skills and Tactics Workshop: Road – 7 hours
Skills and Tactics Workshop: BMX – 7 hours

These modules have similar objectives to the Track module. Coaches are required to take 2 of the 3 discipline-specific Skills and Tactics module Workshops to complete training as a “Race Coach”. Coaches must successfully complete an evaluation after training to be eligible for certification.

Evaluation of the Cycling Introduction to Competition Program

Evaluation of coach competence against a set of pre-determined standards is a key component of the new NCCP. All coaches must successfully complete evaluation in order to become Certified. Generally, workshops and modules are delivered by a Learning Facilitator while evaluation is conducted by a trained Evaluator, who is a different person. However, in the case of the Skills Modules the Learning Facilitator will deliver assessment and feedback (see below).

The evaluation criteria, standards and methods are outlined in the "Outcomes, Criteria and Standards" document. In general, to achieve a learning Outcome, coaches must meet specific Criteria. Standards are used in the evaluation to determine the level to which the coach met displays competence in meeting the Criteria.

There are several types of evaluation activities in the Cycling Introduction to Competition program. These are:

Make Ethical Decisions On-line Evaluation: This component is managed by the Coaching Association of Canada as an on-line evaluation. It is required. The coach should complete this evaluation after the Ready to Race! Training Basics workshop.

Formative Assessment: Before, during and/or after completing the Ready to Race! Training Basics workshop, the coach will complete a variety of tasks including preparation of a portfolio of work. This will primarily include written work, such as preparation of plans or answers to scenario questions. After the Training Basics workshop an Evaluator will assess this work and provide constructive feedback. This is an assessment, not an evaluation, and is intended to support the coaches' learning.

Basic Cycling Skills and Skills and Tactics Modules: The performance of the coach in observing, analyzing and teaching skills and detecting and correcting errors in skills and tactics will be assessed by the Learning Facilitators of these modules, and the coach will receive constructive feedback at or following the Module.

Summative Evaluation: Upon completion of all five Ready to Race! workshop modules the coach participates in evaluation. Successful evaluation is required for NCCP certification as an Introduction to Competition Race Coach. The final evaluation of the coach will involve seeing the coach "in action" and measuring his/her performance against the standards. This will occur at an event scheduled by the Provincial/Territorial Cycling Association.

For more information on evaluation of the program, contact your Provincial/Territorial Cycling Association.

The NCCP vision for children in sport

Introduction to Competition-level cyclists may be as young as 5 years old and as old as 50 or more. However, it is expected that the majority will be children, adolescents or young adults. A few comments on coaching children are appropriate here- and these comments apply to older participants as well!

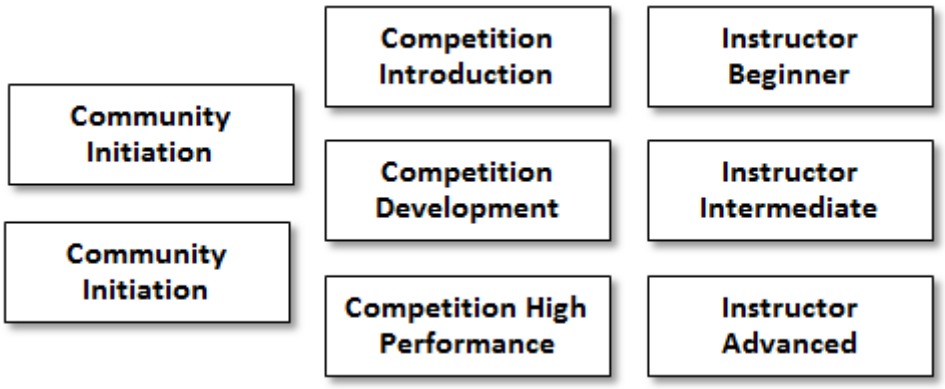
Children play a sport in order to have fun and to be with friends. Every child involved in sport should have a positive experience, which is only possible when the sport environment is both physically and emotionally safe.

The children depend on you, the coach, to build and maintain the sport environment. Children will be able to develop a love for sport when your leadership is directed at valuing each and every one of them. You have an important opportunity to have an impact on the lives of the children involved in your program.

This workshop is intended to support your efforts by providing you the opportunity to learn and improve as a coach. Congratulations on taking the step to participate in this workshop, and thank you for the time that you are giving to develop sport for children in Canada.

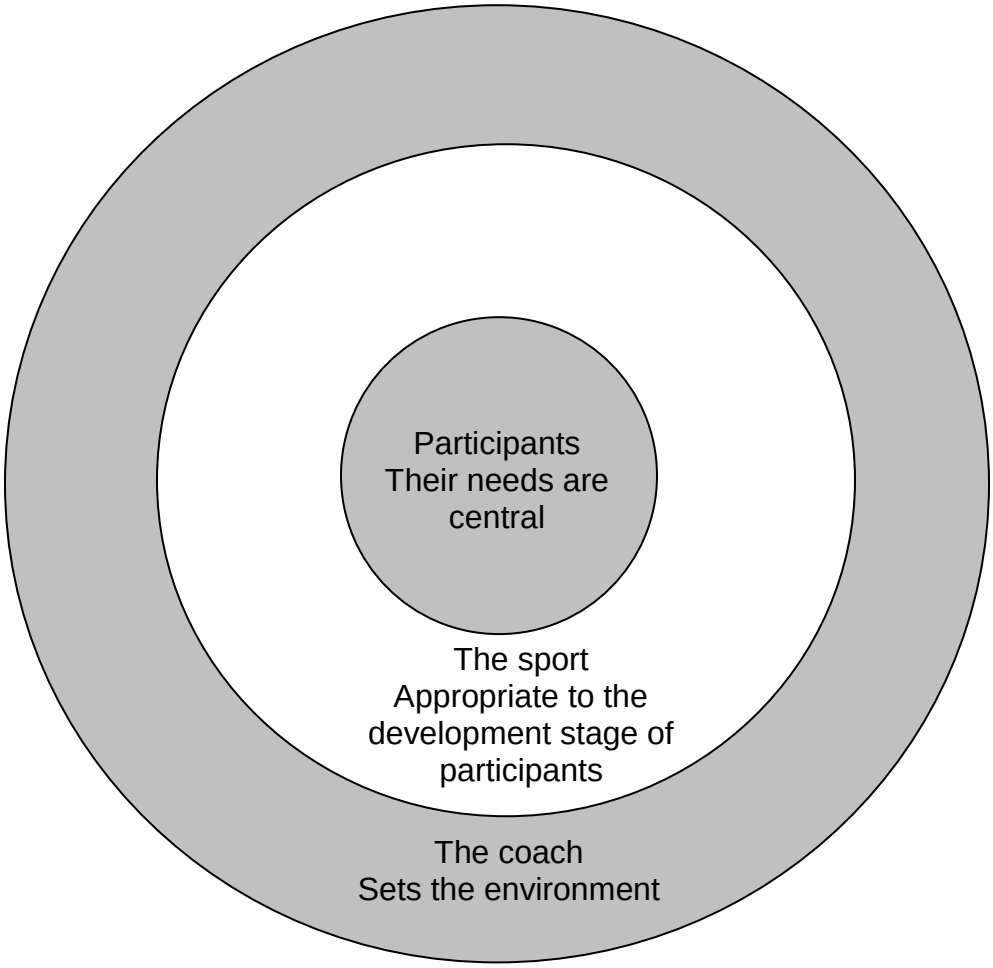
The NCCP Structure

The NCCP model distinguishes between training and certification. Coaches can participate in training opportunities to acquire or refine the skills and knowledge required for a particular coaching context (i.e. Competition-Introduction) as defined by the sport and be considered "*trained*". To become "***certified***" in a coaching context, coaches must be evaluated on their demonstrated ability to perform within that context in areas such as program design, practice planning, performance analysis, program management, ethical coaching, support to participants during training, and support to participants in competition.



For more information on the changes to the NCCP, visit the Coaching Association of Canada website at www.coach.ca.

As you participate in the Workshop, keep in mind the following diagram as a model for sport. You play a key role in establishing the tone of practices and competitions and ensuring that the needs of the participants are central to all decisions made.

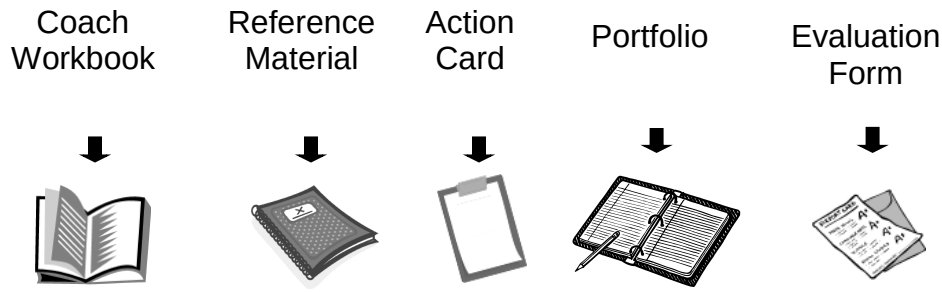


Using this Workbook

This Ready to Race! Cycling Introduction to Competition Workshop is designed to give coaches opportunities to work with fellow coaches, learn about a variety of situations common in cycling, and practice their skills. This practice will occur in several settings: in a “classroom” environment, at a cycling venue, or on a parking lot or other surface where cycling skills can be learned and practiced.

As you advance through the Workshop, this Workbook will be used to capture your ideas and answers to a number of questions. This Workbook also includes *Reference Materials* where you can find a variety of information and sample forms that you will need to prepare for and deliver a program. As it is expected you will complete the Training Basics workshop and the Basic Cycling Skills workshop prior to this Skills and Tactics workshop, you will be referred to *Training Basics Reference Materials* on some pages. You will also complete work in a *Portfolio*, which will be used for all workshops in the Ready to Race! Program and will be assessed by an evaluator. Finally, you can record some of the great ideas you find in the Workshop on an *Action Card*, which you should keep in front of you as the Workshop progresses.

The following symbols appear in the *Coach Workbook* and the *Reference Materials*, to help you find resources:



Enjoy the Workshop!

Workshop
Action Card

Date: _____ Location: _____

ACTIONS:

I intend to STOP…

I intend to CONTINUE…

I intend to START…

GREAT IDEAS:

New friends in coaching from this workshop…

For coaching tips and more information about coaching workshops, visit the Coaching Association of Canada website at:

coach.ca
VISER PLUS HAUT

Step 1 Participants and their Needs

Meet the Riders

In this Workshop you meet two different track riders- Sofia and Lucas. They will be the case studies for many of the examples in the Workshop. You will also have the opportunity to create or use a profile of a rider you are familiar with. But first, let's meet Sofia and Lucas.

Sofia is 17 years old. She did a few MTB races with her Dad last year but then she signed up for a novice clinic at the nearby track. She loved the speed and wants to try racing. She has been to the track several times and worker with the coach each time. This Sunday will be her first race- she's doing a pursuit.

Lucas is 14. His older brother races so Lucas is used to going out to the track. Sunday will be his first race as well. He has met the coach and done the novice clinic at the track but Lucas's father is the "family coach". Lucas isn't as "serious" as his big brother, but the coach suspects he could be a successful racer if he puts in the effort and develops his skills.

Do you know any riders like Sofia and Lucas?

Knowing about the participants you are coaching

1. Indicate how many of the participants you work with are in each of the following age ranges:

   Young children: 3-5 yrs ( )

   Children: 6-7 yrs ( )

   Children: 8-9 yrs ( )

   Pre-puberty: 10-11 yrs ( )

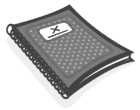
   Early puberty: 12-15 yrs ( )

   Adolescence: 16-18 yrs ( )

   Adult: 19+ yrs ( )

   Average age (range):

This symbol means the Reference Material contains information related to this topic



2. Fill in the following information on the participants:

   Sex: ____ (M)___ (F)

   Age Category:

   If they compete, their Category (e.g. “Junior” “U9”): _____

   LTAD Stage:

   Take a look at the Long-Term Athlete Development stage descriptions in the *Cycling LTAD* guide. How many participants do you have in each of the following stages?

   FUNdamentals ( )

   Learn to Train ( )

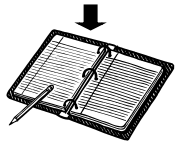
   Train to Train ( )

   Learn to Compete ( )

   Train to Compete ( )

   Others (specify):

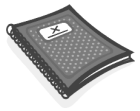
This symbol means you need to complete a section in your Portfolio



3. Now refer to the Athlete Profile form in your *Portfolio*. If you have not done so in a previous Workshop, take a few minutes to fill out the Profile for an athlete you coach. If you wish, you can make up an imaginary profile for an athlete typical of those you will coach. If you have already made a Profile, take a moment to review it.

4. Pair up with another coach who coaches a similar age group and list any specific ways you would adapt what you have the participants do or how you would coach based on the growth and development needs of the age group that you will be coaching. If you work with different-age participants at the same time, how do you adapt the way you coach to meet the needs of your participants?

   For example: I keep my instructions short because eight-year-olds can’t stay still and listen for long



5. With a partner, brainstorm ways to make your program more attractive to people with a disability. You may wish to review the information on Athletes With A Disability in the *Training Basics Reference Materials*. Are there any adaptations you would need to make?

This symbol means write your thoughts on your Action Card

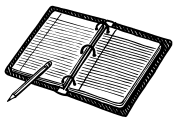
6. Spend a few minutes on your own and note on your Action Card anything that you learned about the needs of the participants you coach (Step 1).

Step 2 Getting Ready to Race

Basics of Track Racing

Event analysis: physical, mental, tactical

In the Ready to Race Training Basics and Training to Race Workshops you analyze cycling events in terms of their physical, mental and tactical demands, and develop training and pre-race routines to meet these needs for individual racers. In this Workshop you briefly review the demands of Track racing and use the results to guide creation of your pre-race and in-race plans. If you have already completed Training Basics and/or Training to Race you will be better prepared.



1. The Learning Facilitator will present on *"Cycling Event Analysis".* Be sure to complete the *"Analyzing Your Cycling Event"* chart in the *Portfolio*. If you have already done this, review your material briefly. Transfer the descriptors for your event from the *Portfolio* to the following table:

	Physical	Mental	Tactical
Event Name: *Track- Sprint*			
Event Name: *Track- Pursuit*			
Event Name: *Track- Points Race*			

2. As a coach, if you could only help a racer by suggesting <u>one</u> key preparation activity in each area (Physical, Mental, Tactical) in the last 36 hours leading up to the race, what would you suggest? Fill in the following table (*an example has been provided)*:

	Physical	Mental	Tactical
One day before the race (off site)			
Morning of the race (on site)	*Warm up well just before the start*		

Track Rules and Role of the Coach

An important role of the coach is to ensure racers know the basic rules of the sport so they can compete fairly and safely. Sometimes rules include both fairness and safety, for example, rules prohibiting aggressive physical contact between racers.

1. On your own, list 3 to 5 of the most important track racing rules you would want to teach first-time racers like Sofia (age 17) and Lucas (age 14). Are these rules concerning fair competition, safety, or both? Do they concern equipment or conduct? You may want to refer to a Rulebook for ideas. Then fill in the chart below:

Rule (list here)	Motive? (circle one)	Category? (circle one)
	Fairness Safety Both	Equipment Conduct
	Fairness Safety Both	Equipment Conduct
	Fairness Safety Both	Equipment Conduct
	Fairness Safety Both	Equipment Conduct

2. What are some good ways to teach rules to new racers? Have a brief discussion with your group. Does anyone have especially creative ways to introduce rules?

Tip:
You can find UCI Track Cycling rules at: www.uci.ch

Many cyclists find it difficult to learn rules by reading them or by having someone simply explain them to you. One way to introduce rules is to play a slow-motion mini game, and freeze the group each time you want to point out one of the basic rules. Another way is to show a short video of the sport, and freeze the video to explain a rule.

3. Other than teaching rules, what are the coaches' roles and responsibilities related to the rules when at the race? For example, how does the coach interact with the racer while he/she is racing? Is there a rule about this? What about interaction between coach and race officials? What rules govern this?

Interaction	Related Rules
How I interact with my rider during the race…	
How I interact with officials at the race venue…	

Tip:
It is a good idea to establish a code of behaviour with your team that will help determine ahead of time how you will act or how the team members will act in a given situation. When a challenging situation does occur and the heat of the moment might impair someone's judgment, the code is there to guide behaviour.

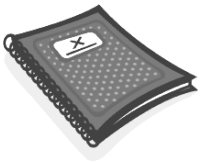
Establishing a parent code of behaviour is a good idea as well. Guidelines for establishing a code for participants, coaching staff, and parents as well as sample codes of behaviour are provided in the Reference Materials. It is strongly recommended that those expected to adhere to a code play a role in helping to put it together.

Safety Check and Your Emergency Action Plan

In the Ready to Race Training Basics Workshop you identify a range of risks that participants face, consider your liability as a coach, and develop a Safety Check procedure and an Emergency Action Plan. In this Workshop you review the Safety Check and Emergency Action Plan, and complete the EAP if you have not already done so.

Responding to an emergency

1. What, in your opinion, constitutes an emergency situation? In other words, when would you call for emergency medical services?

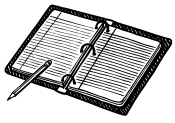


2. What would you do if an emergency occurs (what is your Emergency Action Plan, or EAP)? Use the blank *EAP Worksheet* in the *Portfolio* and create your own EAP for the facility that you practise/race at most often. Feel free to review the *Training Basics Reference Material* sections entitled *Emergency Action Plan (EAP)*, *Emergency Action Plan Checklist,* and *Sample Emergency Action Plan* to help you.

Liability

No matter what their certification, experience, employment or volunteer status, sport discipline, or location of residence, coaches at all times have a legal obligation to provide a safe environment for participants. Information on your liability as a coach can be found in the *Training Basics Reference Material* section entitled *Coach Liability* as well as in the appendix to the *Reference Material* entitled *Legal Questions and Answers (FAQ).*

Safety Check *(when at the practice facility or venue)*



1. Pull out a copy of the *Facility Safety Checklist* from the *Portfolio*. Use the checklist to do a five-minute safety check of the venue.

2. Compare what you found to what other coaches found.

3. In addition to checking the venue, it's important to check bicycles are in safe condition. What parts of a bike do you need to be checked to be sure it is in safe working order for a track race? Compare your ideas with other coaches.

Spend a few minutes on your own and note on your Action Card what you learned about practice planning and safety.

Race Preparation 1: The Day Before the Race

Scenarios

The day before the race is important part of race preparation. It is an opportunity for mental and physical preparation, rest and proper nutrition and hydration, and checking and organization of equipment. Here's how our two novice racers, Sofia and Lucas, spent the day before their first race.

Sofia is stressed. She has a big assignment due for school and it's made it hard for her to train over the past week. She worries that she's not ready for Sunday's race. She went out on the road this morning for a one-hour ride, and her track bike is ready. Eventually she decided to race anyway, since she didn't want to let anyone down. She's had a good dinner (she's a vegetarian) and her race bag is packed for tomorrow.

She spends the evening working on her assignment, and has some coffee to keep her going. She goes to bed about 1 am- later than she planned, but the assignment comes first. Now she's having trouble getting to sleep. She wishes she had decided not to race tomorrow!

Lucas went out for a short road ride with his brother in the morning. He's quite relaxed and looking forward to the race. His Dad will be giving him and his brother a lift tomorrow. His bike seemed OK, but he doesn't really check it out and it's been a while since it was cleaned or lubricated properly. Lucas doesn't eat his dinner but has a pizza slice and pop with friends about 9 pm. Then he goes home and watches TV. He goes to bed about 11 pm without putting his things in a bag for tomorrow- he's usually a bit disorganized.

1. List your main objectives for a new racer on the day before the race. Write one or two key points using the following five headings: Physical, Mental, Technical/Tactical, Sustenance (nutrition/hydration and rest/recovery), Other.

Physical: _____

_____

Mental:_____

_____

Technical/Tactical: _____

_____

Sustenance:_____

_____

Other:_____

_____

2. How did Sofia and Lucas do compared to the objectives you created? Rate them on a 1 to 5 scale where 1 is “Did not meet objectives” and 5 means “completely met objectives”.

	Physical	Mental	Tech/Tactical	Sustenance	Other
Sofia					
Lucas					

3. (a) Take a few minutes and discuss your ideas with another coach. Don’t discuss <u>how</u> to achieve the objectives, just the main objectives for the day, and how well you think Sofia and Lucas met the objectives. Did you think of any other objectives to add to your list?

   (b) Pick <u>one</u> key area (eg. Physical, Mental) where you think <u>one</u> athlete (Sofia or Lucas) was the farthest from your ideal objective. What would you have done differently to prepare the rider? Discuss.

Now (or later, as an assignment) fill out the *Race Preparation 1: The Day Before the Race – Racer’s Schedule* form in the *Portfolio* using your own case study athlete profile as an example.

Race Preparation 2: To the Line

Scenarios

It's the big day! Sofia and Lucas are at the track for their first race.

Sofia is at the track early. She drove out by herself, but her mind is on her school assignment. She registers and gets her bike ready, then puts on her clothing, shoes and helmet. She warms up a bit, but she is a little distracted. Who will she be racing against? She's starting to worry a bit.

The track coach works with almost all the athletes racing today, except for a few from another city. That means he coaches most of Sofia's competitors. He has given both Sofia and her opponent a basic pursuit schedule and helped them practice staying on it in training sessions. Sofia is not sure how it will work out. She finishes warming up on the rollers, and suddenly she's called to the line! Sofia's really distracted now- she's forgotten everything she's learned.

Lucas and his brother are at the track in good time, they register, dress, warm up and then sit down and have a drink of water. Lucas will be riding a mixed-age novice points race, just like he's done several times in training…except this time it's a real race! Everything would be fine except Lucas's Dad seems to be getting into an argument with the coach. What's that all about? Apparently Lucas's Dad wanted him to enter another event but the coach thinks it's a bad idea. Now Lucas's Dad is in a bad mood, and Lucas feels annoyed at everyone.

1. List your main objectives for a new racer on the morning of the race. Write one or two key points using the following five headings: Physical, Mental, Technical/Tactical, Sustenance (nutrition/hydration and rest/recovery), Other.

Physical	Mental	Tech/Tactical	Sustenance	Other

2. How did Sofia and Lucas do compared to the objectives you created? Rate them on a 1 to 5 scale where 1 is “Did not meet objectives” and 5 means “completely met objectives”.

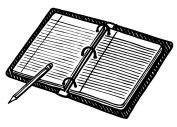
	Physical	Mental	Tech/Tactical	Sustenance	Other
Sofia					
Lucas					

3. (a) Take a few minutes and discuss your ideas with another coach. Don’t discuss how to achieve the objectives, just the main objectives for the pre-race period, and how well you think Sofia and Lucas met the objectives. Did you think of any other objectives to add to your list?

(b) Pick one key area (e.g. Physical, Mental) where you think one athlete (Sofia or Lucas) was the farthest from your ideal objective. What would you have done differently to prepare the rider? Discuss.

(c) If you didn’t choose Lucas as an example in (b), how would you help him? Make a few notes.

(d) The last few words a coach says to a rider on the way to, or at, the start line are important. They can either motivate or distract a racer. Talk to a fellow coach and come up with some guidelines- Do’s and Don’ts.



Now (or later, as an assignment) fill out the *Race Preparation 2: To the Start Line – Racer’s Schedule* form in the *Portfolio* using your own case study athlete profile as an example.

Race Preparation 3: The Race

Understanding Track Strategy and Tactics

What is strategy? What are tactics? How do they work together? Your Learning Facilitator will lead a brief discussion.

1. For either pursuit OR points race (choose one), take a moment to fill in the following table with some examples:

Event: *Track- Pursuit OR Points Race (circle one)*		
One basic Strategy:		
Supported by	Tactic 1:	
	Tactic 2:	
	Tactic 3:	

2. Different racers have different abilities. List some of the factors you think might affect the ability of a racer to understand and use strategy and tactics. *(Example: "Young children may have trouble understanding abstract concepts like 'strategy'")*

3. As a coach, what could you do about one or more of these factors? Discuss with a fellow coach or the group.

4. Your facilitator will continue the discussion of track strategy and tactics with an emphasis on the start, track positioning and the finish for Sprint, Pursuit and Points Race. Use the following chart to record some notes.

	Notes: List event here-
Start:	
Track positioning:	
Finish:	

The specific skills required to be successful will be covered in the third part of this Workshop, “Step 3 – Track Skills and Tactics”

Mental Control

In racing, not everything goes according to plan. Racers may be distracted, have a poor start, crash, or suffer a mechanical problem. At these times, what they say to themselves and the decisions they make can be the difference between success and disappointment.

In the Training Basics and Training to Race Workshops you work on mental preparation in more detail. In this Workshop, you will briefly look at in-race focus and use of key words.

Scenario

They're racing! Even though they've only done a few laps, Sofia and Lucas are having very different experiences in their races.

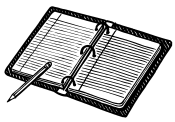
Sofia is riding a Pursuit. She was distracted at the start and she lost a few meters to her opponent right away. He coach didn't signal but when see looked across the track she panicked and went extra hard to catch up. She was losing! The next lap the coach was signaling her to slow down, and she was feeling the effort in her legs- with a long way to ride.

Lucas didn't even want to race. Angry with his Dad, he went to the line and took the start of his Points Race. Soon he calmed down and started to feel he was getting into the race. He found a good wheel and started thinking about the first sprint. Somehow Lucas timed it just right and, without seeming to try, he won the sprint! He felt the same panic as Sofia did, but for a different reason. He was winning- what should he do now?

1. Earlier, when you were reviewing the "Race Analysis" information in the *Reference Materials* and filling out the Analyzing Your Cycling Event sheet in the *Portfolio*, you came across some of the mental preparation needs for Track racing. Review these briefly.

   (a) What things do you think Sofia and Lucas should be focusing on at this point in the race? Put a check mark beside those things on the following chart.

Correct Focus or Not?	Sofia	Lucas
Where the other competitors are		
Following the right line		
Winning		
Can Dad see me?		
My bike isn't very good…		
This is scary! Help!		



(b) Work with another coach and develop a race focus plan to help your own riders. First, break the race into main phases or blocks, such as Start, First Turn, and Finish. Then list 1 or 2 key things for the rider to focus on in that phase. Finally, create a "cue word" to help the rider remember his or her focus at that time. (The "cue word" can be 1 to 3 words long, but it should be as short, simple and powerful as possible.) Fill in the *Race Focus Plan* form in the *Portfolio*.

Coach Support During Competition

When the race starts, it's all up to the racer. The coach can only help in limited ways. However, these are still important functions and the coach should be able to manage them well. In this section we will look at the "5 Ws" – Who, What, Where, When and Why- of coach activity.

Note: in track racing, the rider usually participates in a number of events during the day. Therefore the day includes a number of repetitions of pre-race, in-race and post-race tasks for the coach and rider. This section only covers what the coach may be doing while the rider is racing on the track.

1. Take a look at the following list of activities the coach could be doing while the racer is competing on the track. Put a check mark beside the activities you think are appropriate.

Coach Activity	Appropriate?
1. Watching the rider closely to analyze his/her performance	
2. Cheering the rider on	
3. Shouting instructions to the rider	
4. Helping to prepare other riders who will be racing soon	
5. Having a quick snack or drink	
6. Calling home to check on dinner	
7. Taking video of the racer for later video analysis	
8. Preparing snacks or drinks for the rider(s) when they finish	

Get some feedback from the group on your choices. Did you think of any other appropriate tasks? Did you change any of your choices?

2. Now, think back to your Observation Plan from the Basic Cycling Skills Workshop. Choose the activity of "watching the rider closely to analyze his/her performance". Apply ideas from the Observation Plan and fill out the following table:

Coach In-race Planning Chart	
Activity: *Watching rider and analyzing performance*	
Who (Who is doing the activity?)	
What (What is the activity?)	
Where (Where is the coach positioned? What is the best position?)	
When (How long does the activity take? When does the coach need to be in position?)	
Why (What is the purpose of the activity? What should be the outcome or products?)	

Race Preparation 4: Post-Race

Post-race Activities for Rider and Coach

After the race the rider needs to perform several important activities, including cool-down and recovery, race review, and possibly the beginning of preparation for the next race. This section examines what the coach can do to help the rider after the race.

Scenario

Sofia finished second. Her pace went up and down and she really struggled the last few laps. Now she's angry with herself. The coach gives her a pat on the shoulder and says "good ride" but she's beginning to wonder why she wanted to race the track in the first place.

Lucas was thrilled right after the race. He finished third; other riders with more experience collected more points but his first place in the initial sprint, and a third in another, got Lucas "on the podium". The trouble is, since the coach and Lucas's Dad are angry with each other, nobody congratulated Lucas- except for his brother. Now Lucas is getting angry again at the lack of attention.

1. Your Learning Facilitator will lead a brief discussion about post-race activities the coach should do, including how to hold a post-race discussion with the athletes. Think about how you would handle a discussion with either Sofia or Lucas. What should the coach stress in discussion with each rider? What should the coach avoid doing or saying?

Step 3 Track Skills and Tactics

In this part of the Workshop we will focus on track skills, how to teach them, and how to integrate them into tactics. However, before we begin, this is also a good time to review the basic track cycling position.

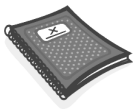
Track Cycling Position

1. Having the correct cycling position is important to the comfort, safety and performance of the cyclist. Review the *Basic Cycling Position* page in the *Reference Materials*, then observe a cyclist while riding. (You may be shown a video instead.) Use the following checklist to record your observations.

Yes	No	
☐	☐	While riding, the cyclist's foot is placed appropriately over the pedal axle: ball of foot over axle.
☐	☐	When the crank arm is pointing forward and parallel to the ground, the cyclist's knee is roughly over the pedal axle.
☐	☐	While riding, viewed from behind, the cyclist's hips do not rock excessively.
☐	☐	While riding, viewed from the side, the cyclist's elbows are slightly flexed, the head is up, and the upper body appears relaxed, comfortable, and does not move excessively due to the pedaling motion.
☐	☐	While riding, viewed from the front, the cyclist's hands are roughly shoulder-width apart, and the hands and fingers can easily reach the handlebar "drops".

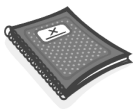
For any "No" answers, record your options for making a correction to the position. If there were no "No" answers, select two items from the checklist and list correction options as if there were faults.

Track Skills: The ABCs



p. 44

1. Review the Cycling Skills Model in the *Reference Materials* and familiarize yourself with the ABCs. Then watch a demonstration by a cyclist riding a track skill. Which of the ABCs can you observe in action? Which ABCs are not performed?



p. 45

2. Review the three-phase and five-phase analysis model in the *Reference Materials*. You'll have a chance to see a demonstration of a skill. Can you spot the different phases? Which ABCs occur in each phase? Is the skill three-phase or five-phase? Why?

3. To be able to spot the phases and ABCs as participants attempt to learn new skills, you'll need an Observation Strategy. Think about the best place to watch the skill from (Front? Beside? Behind? High or low?) Will this be the same for every skill?

Practicing Track Skills

Now you will have an opportunity to practice and instruct Track cycling skills yourself. The eight track skills that you will instruct are:

- Standing starts
- Pedalling at high rates (r.p.m.)
- Smooth riding on a line
- Using the banking for positioning
- Changing the lead (team pursuit-style)
- Hard accelerations on the straights
- Using the banking for accelerating
- Gear selection for events and conditions

Due to Workshop time limits, you may not be able to practice every skill.

As you watch the demonstrations of the activities and try them yourself, think about the following questions. You may want to use your *Skill Analysis Sheet* to make notes:

1. What are the phases of each skill? How does the demonstration help make the phases clear?

2. What are the ABCs that go into each skill? How does the explanation by the demonstrator or learning facilitator help make this clearer?

3. When you tried the skill yourself, what were the key cue words or phrases that helped you perform the skill correctly?

4. Use the *Skill Analysis and Error Correction Sheet* in this *Workbook*. You will only be using the Observation Strategy and Key Movements boxes at this time. Fill out these areas for the skill you have selected. Then, watch a demonstration of this skill, and put tick-marks on your sheet when you see the ABCs. Did your observation strategy work?

Model coaching by the facilitator

The facilitator will demonstrate how to coach an activity with a group of participants. Look at *Self-assessment Sheet #1* and watch how the facilitator follows the guidelines for:

- selection of the activity
- safety before the activity
- explanation
- demonstration
- organization
- safety during the activity.

Planning to lead an activity: Using the Lesson Plans

p. 49-55

1. Choose one of the skills from the Track Lesson Plans in the *Reference Materials* that you think would be suitable for your participants. (Note: 7 plans are included- there is no lesson plan for gear selection.) Review the purpose of this skill and its key characteristics.

2. Pull out one copy of *Self-assessment Sheet #1* from this *Workbook* or the *Reference Materials* and have a look at all the points on the sheet. Have a look also at the *Reference Material* sections entitled *Teaching and Learning* and *The Steps of Coaching an Activity*.

3. Later, you will be asked to coach your chosen activity using the other coaches as your participants. Think about how you will coach your activity using the *Self-assessment Sheet* and the *Reference Material* as guides. Use the *Cycling Skill Planner* on page 53 of this Workbook to create your plan.

Spend a few minutes on your own and note on your Action Card what you learned about delivering a practice session. Review and modify your *Cycling Skill Planner* as needed.

Tip:
How you organize activities and how you arrange for the transition from one activity to the next will be important in maintaining the attention and the interest of the participants. Participants are happiest when they are busy, when they have lots of chances to try an activity, when they succeed more than they fail at the activity, and when they have some choice in what they are doing. Choose challenging activities that participants can do successfully at least seven out of every 10 tries. Maximize the time that they are active, with very little time spent waiting in line or in transition between activities. Use the services of any available parents or helpers who can help you arrange your activities in stations. Allow participants some say in what stations you set up and the ways they move between them.

Skill Progressions

Skill progressions are an important part of teaching a skill effectively. Basically, skill progressions consist of breaking down skills into steps and practising them from the easiest to more complex levels. The facilitator will present some information about creating skill progressions.

1. Return to and review the skill development lesson you have been preparing. Create a skill progression list for your activity on your *Skill Planner* sheet.

2. Think about presenting your lesson to a group of young participants (age 12-14, for example). What skill progression would be appropriate? How could you keep the interest of the participants as they practiced?

Basic Track Tactics

Now that you have had a chance to work on track skills, it is time to see how the skills are linked (or "integrated") to execute basic track tactics. Think back to the discussion of track strategy and tactics from earlier in this Workshop.

p. 59
Pursuit
schedule

The basic Track tactics that will be covered in this Workshop are:

- Riding to a schedule (e.g. pursuit)
- Two-rider sprint tactics
- Moving within a group/pack (e.g. points race).

The facilitator will lead a session on Track tactics. As you observe each tactic, look for the following:

1. Which skills combine to allow the rider to execute the tactic effectively? How are the skills linked together? This may happen very quickly, and you may need to observe the tactic several times to see how the skills combine.

p. 50-51

2. What does this mean for the teaching of skills and tactics by the coach? How would the coach's job be different when instructing different levels of athlete (athletes in different LTAD stages)? Take a look at the Track Skills Development grid in the *Reference Material.* Is there a "best time" to introduce each skill?

3. Use a new *Skill Planner* Sheet to prepare a tactics lesson. Be sure to choose a tactic that builds upon the skill you chose previously. (When complete you will have filled out two Skill Planners- one for a skills lesson, one for a tactics lesson. Include these in your *Portfolio*)

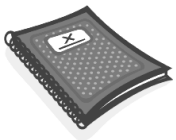
Preparing to Lead an Activity:
Model coaching by the facilitator

The facilitator will demonstrate how to coach an activity that includes tactics with a group of participants. In addition to seeing how the tactics are used, think about how they are developed (skill progression) and how the facilitator communicates with the participants. Look at *Self-assessment Sheet #2* and watch how the facilitator follows the guidelines for:

- skill progression
- intervention
- general communication.

Communicating and interacting with participants

1. The facilitator will now present some information on effective communication and intervention (feedback) techniques. Record any ideas on your Action Card.



p. 61

2. Pull out the copy of *Self-assessment Sheet #2* from the *Reference Material*. Have a look at the *Training Basics Reference Material* sections entitled *Self-esteem* and *Creating a Participant-centered Environment*. Will this information affect the way you present your lesson? Make additions to your *Skill Planner* Sheet.

Practice coaching session

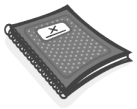
Now you will have an opportunity to present your skill lesson to fellow coaches. You will be asked to:

- coach your activity
- listen to some feedback from the facilitator and other coaches
- take five minutes to complete *Self-assessment Sheet #1and Sheet #2*
- jump back in and be a participant while another coach practises.

Debriefing your practice coaching session

Discuss your self-assessment with another coach. Practise being an active and effective listener when another coach is commenting on his/her performance.

3. Take a few minutes on your own and note on your Action Card anything that you learned from the first practice coaching session. Be sure to note things you did well, things you need to improve, and ideas from watching others practice coach.



4. Compare your completed *Skill Planner* sheet for the skill you selected with the *Sample Skill Planner* in the *Reference Material*. How does your version compare? Did you miss any points?

Participant Tactics Coaching Session #2 (optional)

If time permits, you may have an opportunity to coach your practice tactics session with either fellow coaches or guest participants.

5. You will be asked to:
   - coach your activity to the participants
   - listen to some feedback from the facilitator and other coaches
   - take five minutes to complete *Self-assessment Sheet #2*
   - rejoin the group while another coach practises.

Debriefing your participant coaching session #2

6. Discuss your self-assessment with another coach. Practise being an active and effective listener when another coach is commenting on his/her performance.

7. Take a few minutes on your own and note on your Action Card anything that you learned from this practice coaching session. Be sure to note things you did well, things you need to improve, and ideas from watching others practice coach.

Tip:
The words you choose and your non-verbal communication are key indicators to participants of what you think of them. Aim to speak positively and to be mindful of their feelings and self-esteem. Participants care a lot about what you think.
Be sure to always point out what they are doing well. Instead of leaving a lasting impression in their minds of what not to do, you will leave them with a lasting impression of what to do.

Workshop Wrap-up and Evaluation

1. Take a few minutes to share ideas of what you learned and exchange contact information.

2. Please complete a workshop evaluation form; your feedback is important.

Cycling Canadaand the National Coaching Certification Program thank you for the time you dedicate to coaching. Your efforts make a difference in the lives of those you coach. Congratulations on completing the workshop!

CyclingCANADACyclisme

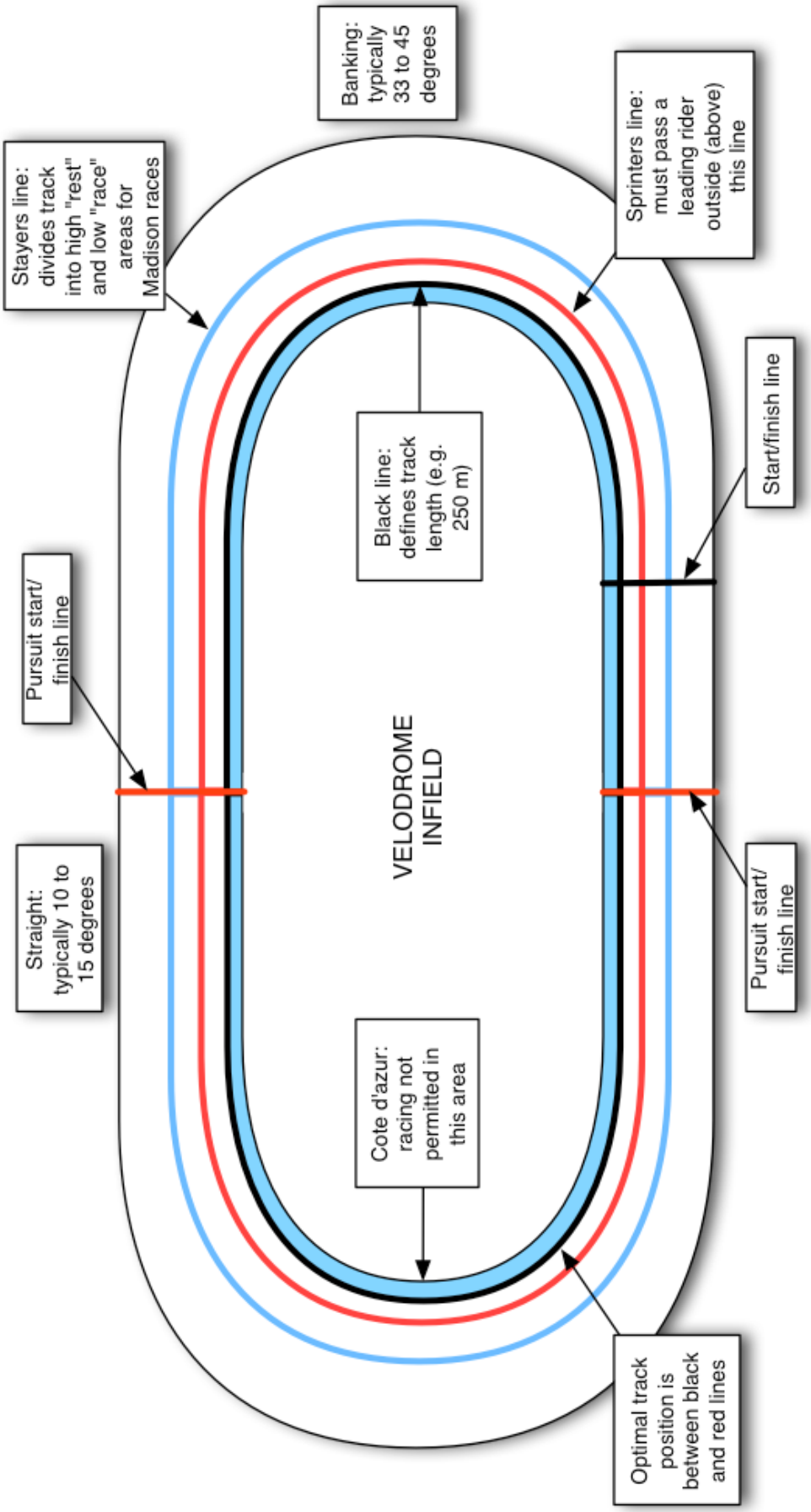
National Coaching Certification Program

Ready to Race!

Introduction to competition

Track Skills and Tactics Reference Material





Banking: typically 33 to 45 degrees
Stayers line: divides track into high "rest" and low "race" areas for Madison races
Sprinters line: must pass a leading rider outside (above) this line
Start/finish line
Black line: defines track length (e.g. 250 m)
Pursuit start/ finish line
VELODROME INFIELD
Straight: typically 10 to 15 degrees
Pursuit start/ finish line
Cote d'azur: racing not permitted in this area
Optimal track position is between black and red lines

Cycling Skill Development Model

The model on the next page shows an approach to building basic cycling skills. This brief explanation will help you use the model in your coaching.

Note: these are generic cycling skills, not specific Track skills. Many do not apply on fixed-gear bicycles. See if you can identify which skills are used in Track.

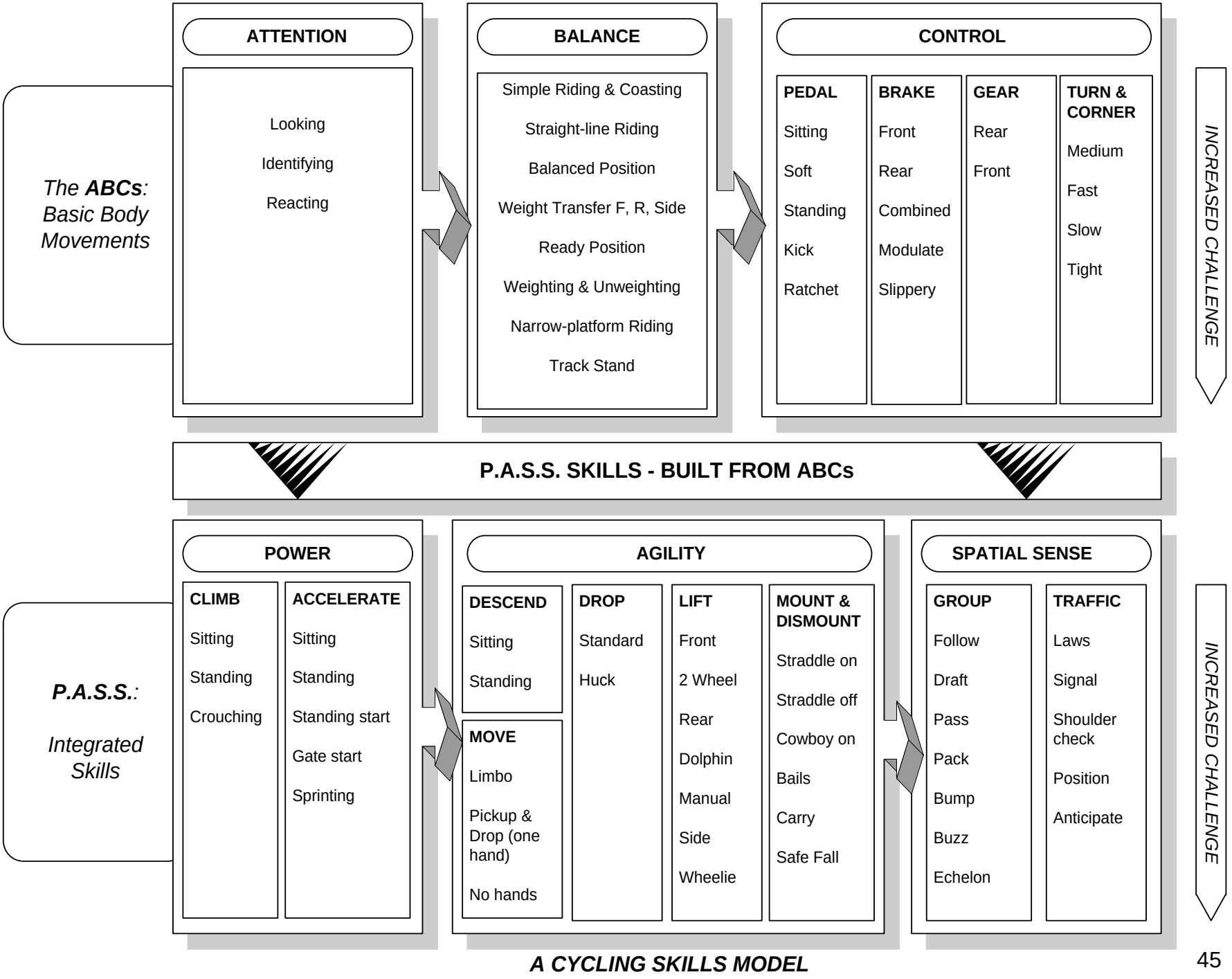
- The first step in developing cycling skills are the ABCs: Attention, Balance and Control. These form a foundation for more advanced skills. Each of the ABCs can be broken down into various parts. Understanding the ABCs allows the coach to instruct skills from the building blocks on up, to analyze movements and detect and correct fundamental errors, and to plan effective skill progressions.

- When analyzing a cycling skill, always look for the ABCs first. Every skill is based on some combination of A, B and C in the set-up and initiation of the skill. If there are problems with these basics, the cyclist will not be able to build more advanced skills.

- The ABCs can be put together, or integrated, into more complex skills: Power, Agility, and Spatial Sense skills (P.A.S.S.). For example, an Agility skill like Limbo (ducking under an obstacle) requires the cyclist to pay Attention and adjust his/her speed and path; to use Balance by shifting weight; and to Control by braking, steering, and pedaling in preparation for the obstacle.

- Ready position has special importance. In ready position, the cyclist has knees and elbows slightly flexed, fingers on the brake levers, and is attentive to upcoming conditions. He or she is ready to react. One objective of building good ABCs is to prepare the rider for Ready Position, which in turn is a starting point for many P.A.S.S. skills.

- In general, skills are integrated into new more complex skills, from left to right on the model diagram. Within each box, there is also a progression from top to bottom, with more challenging skills at the bottom (for example, Control – Brake goes from one front brake at top to combined, modulated braking in slippery conditions at the bottom).



A CYCLING SKILLS MODEL

Skill Analysis: Cycling Skills

The Skills Model groups cycling skills into ABCs and P.A.S.S. These can be further broken down using either a three- or five phase analysis: Set-up, Preliminary Movement, Force-producing Movements, Critical Instant and Follow-through, or in three-phase analysis, Set-up, Movement, Follow-through. This method of analysis is used in many sports.

- Set-up: Decision and preparation for executing the skill, usually a combination of Attention, Balance and Control (ABC) movements.

- Preliminary Movements: The first movements of the skill itself, often a narrowing of Attention along with a new combination of Balance and Control movements.

- Force-producing Movements: Typically this is a combination of Balance movements such as weighting, unweighting, and weight transfer needed to execute the skill. These movements are often rapid, powerful and coordinated and therefore can be difficult to observe or separate.

- Critical Instant: The force-producing movements combine to achieve the objective of the skill. The moment when the success of the skill can be seen.

- Follow-through: The final movements, usually a combination of Attention, Balance and Control, needed to complete the skill and transition to a new skill. This may overlap the Set-up phase of a new skill.

In a three-phase skill, Preliminary Movements, Force-producing Movement and Critical Instant merge together into a Movement Phase. This is true for continuous skills. For example, here are the five phases of the Standing Acceleration:

Set-up	Preliminary	Force-producing	Critical Instant	Follow-through
• Identify/react A • Change gearing if needed C	• Weight transfer forward & unweighting (stand up) B	• Pedaling C • Rhythmic weight transfer to counter-balance aggressive pedaling B	• Acceleration to desired speed	• Continue pedaling C at new speed

A= Attention B= Balance C= Control

Sometimes, especially for the basic ABC movements themselves, there are fewer phases or the Preliminary and Force-producing phases merge. Use an observation plan to spot these phases during skill execution. This allows you to identify errors and suggest corrections. It is also the basis of building skill progressions- the development of increasingly challenging variations on the basic skills.

TRACK SKILLS DEVELOPMENT GRID

The Track Skills Development Grid lists basic track skills, and suggests when the athlete can acquire (A), consolidate (C) and refine (R) them according to age and Long-Term Athlete Development stage. The row titled "Training Age (Sport Years)" should be interpreted as years in cycling.

Pathway			Fundamental	Learn to Train	Train to Train	Learn & Train to Compete	Learn & Train To Win
Chronological Age – M			6 7 8 9	10 11 12	13 14 15	16 17	18 +
Chronological Age – F			5 6 7 8	9 10 11	12 13 14	15 16	17 +
Training Age (Sport Years)			0 – 3 years	1 – 5 years	3 – 6 Years	4 – 9 years	>8 years
Skill Development			ACQUISITION (A) Introduction of skill (movement patterning) Cognitive Stage	CONSOLIDATION (C) Stability of skill through practice (correct execution in variable conditions) Associative Stage		REFINEMENT (R) Fine tuning of skills (Minor improvements and creative solution under all conditions) Autonomous Stage	
NCCP Coaching Contexts			Community Initiation	Competition – Introduction		Comp-Dev	Comp – HP
Foundation Skills		Balance	**A – C**	**R**			
		Agility	**A – C**	**R**			
		Run Jump Throw+	**A – C**	**R**			
		Basic cycling skills	**A – C**	**R**			
		Other cycling disciplines e.g. BMX	**A – C**	**R**			
Motor Skills		Increase leg speed (appropriate gearing)		**A – C – R**	**R**		
		Balance		**A – C – R**	**R**		
		Agility on bike		**A – C - R**	**R**		
Technical Skills- Start & Stop		Body position start		**A – C – R**	**R**		
		Pedal position start		**A – C – R**	**R**		
		First pedal strokes		**A – C – R**	**R**		
		Modulate speed		**A – C – R**	**R**		
		Track stand		**A**	**C – R**	**R**	
Technical Skills- Banking		Minimum speed		**A**	**C – R**		
		Low & high lines		**A**	**C – R**		
		Pace line		**A**	**C – R**		
		Accelerate: drop		**A**	**C – R**		
Technical Skills- Sprinting		In saddle accelerate		**A – C**	**R**		
		Out of saddle acceleration		**A – C**	**R**		
		Hop (sideways)		**A**	**C - R**		
		Contact with riders (parking lot)	**A**	**C – R**			
		Contact with riders (on track)		**A - C**	**R**		

TRACK SKILLS DEVELOPMENT GRID

The Track Skills Development Grid lists basic track skills, and suggests when the athlete can acquire (A), consolidate (C) and refine (R) them according to age and Long-Term Athlete Development stage. The row titled "Training Age (Sport Years)" should be interpreted as years in cycling.

Pathway			Fundamental				Learn to Train			Train to Train			Learn & Train to Compete		Learn & Train To Win
Chronological Age – M			6	7	8	9	10	11	12	13	14	15	16	17	18 +
Chronological Age – F			5	6	7	8	9	10	11	12	13	14	15	16	17 +
Training Age (Sport Years)			0 – 3 years				1 – 5 years			3 – 6 Years			4 – 9 years		>8 years
Skill Development			ACQUISITION (A) Introduction of skill (movement patterning) Cognitive Stage					CONSOLIDATION (C) Stability of skill through practice (correct execution in variable conditions) Associative Stage					REFINEMENT (R) Fine tuning of skills (Minor improvements and creative solution under all conditions) Autonomous Stage		
NCCP Coaching Contexts			Community Initiation				Competition – Introduction						Comp-Dev		Comp – HP
	Tactical Skills	Track start					**A**			**C**			**R**		
		Cornering lines					**A**			**C**			**R**		
		Pace and Pursuit schedule					**A**			**C**			**R**		
		Assess track & opponents & choose strategy								**A**			**C – R**		**R**
		Assess track & choose gearing								**A**			**C – R**		**R**
		Madison skills and tactics								**A**			**C – R**		
	Mental & Decision Skills	Use track to improve position								**A**			**C – R**		
		React to crashes and maintain speed/position								**A**			**C – R**		
		Visualization								**A**			**C**		**R**
		Critical viewing of other races (live or video) for learning								□			□		□
		Focus & re-focus between heats								**A**			**C**		**R**
		Develop ideal performance state (IPS) routine								**A**			**C**		**R**

Skill Analysis & Error Correction Sheet Skill:_____

Observation Strategy: (Where to look, where to stand, what to watch for)

5 phase	3 phase	Key Movements (ABCs + others)	Errors Observed	Recommended Correction
Set-up	Set-up			
Preliminary	Movement			
Force-producing				
Critical Instant				
Follow-through	Follow-through			

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Standing start

<table>
<tr><td>Describe the skill/tactic:

Start quickly and smoothly from a standing, held position.</td><td>Set-up and Equipment:

Cyclist mounted on bicycle; holder (a coach, assistant or starting block).</td></tr>
<tr><td>Teaching Points:
Pedal of stronger leg is raised with crank angle about 45 degrees to ground. Hands on handlebar “drops”. Seated on saddle.
On starter’s signal, stand on pedals (i.e. “ready” position) and apply force to raised pedal.
Accelerate hard by pushing/pulling pedals; use hands/arms to counteract pedal force (i.e. push/pull with hands, opposing pedalling).
Allow bicycle to “rock” laterally while keeping wheels straight. Maintain a straight path.
Remain out of saddle, accelerate to desired speed, and then return to seated pedalling.</td><td>Demonstration Plan:
Cyclists stand on blue band (cote d’azur) and observe start from side, noting crank position and body movements at start.
Cyclists stand behind start and observe for lateral movement of bicycle and starting in straight line.</td></tr>
<tr><td>Progressions:
Begin with less aggressive acceleration, then work to maximum acceleration.
Start on a velodrome line and attempt to remain on line with minimal weaving from start until return to seated pedalling (1/2 lap).
Move from starting block to hand-held start to feel both situations.
“Races” with 2 or 3 cyclists starting side by side; race ½ lap while attempting to maintain straight path.</td><td>Activity Plan for Group:
Explanation by coach while cyclists observe starts (use an assistant to hold, and experienced cyclist to demonstrate).
If facilities and assistants permit, divide into two groups and hold starts on each side of track from pursuit start lines.
Work in small groups of 2-3 to give each rider several trials.</td></tr>
<tr><td>Errors and Corrections:
(E) Crank in wrong position; (C) Ask rider to position lead pedal/crank for next start.
(E) Rider’s arms and upper body too rigid, not allowing lateral rocking during start, resulting in failure to maintain a straight line (C) May need to experiment with starts in parking lot or safe road to learn proper coordinated arm and leg movement and degree of “rock”.</td><td>Observation Plan:
If coach is holding the rider, ask them to position the crank prior to mounting the bike.
On start signal, observe from rear for lateral bike movement, riding in straight line and intensity of effort.</td></tr>
<tr><td colspan="2">Summary/Wrap-up:
The objective is to start as quickly and smoothly as possible. Fractions of a second are lost when the rider can’t maintain a straight line during hard acceleration. Correct pedal position, good upper body strength and coordinated movement are essential to make the fastest starts.</td></tr>
</table>

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Pedaling at high rates (r.p.m.)

<table>
<tr><td>Describe the skill/tactic:

Ability to pedal at high rates, from 120 to 160 revolutions per minute (rpm) or greater, while maintaining smooth form and riding in a straight line.</td><td>Set-up and Equipment:

Track bicycle and selection of gears. Rollers. Ensure rider's position on the bicycle is correct.</td></tr>
<tr><td>Teaching Points:
Look for a tendency to over-gear and work to correct it by first working to maintain the same speed in lower (easier) gears, and then after several months, to maintain the same pedalling rate in a higher (harder) gear.
Relax the upper body, especially the shoulders, arms and hands.
The skill is developed with repetition and practice rather than concentration. Learning to relax the upper body and "let the legs spin" is a key.</td><td>Demonstration Plan:

Have cyclists watch an accomplished rider on rollers, pedalling at up to 160 rpm. Point out smooth technique and maintenance of a straight line.</td></tr>
<tr><td>Progressions:
This skill requires extensive practice over months and years.
Hold "fast pedalling races" among 2 to 4 riders, by reducing the gearing for all riders.
Determine the rider's best flying lap time, then change to an easier gear (reduce 1 tooth on chain ring) and repeat, trying to maintain the same time.
When the rider is comfortable on rollers (not a fixed trainer), these are an excellent tool for developing fast pedalling rates. Experiment with "spin sprints" and work to maintain smoothness by relaxing non-pedalling muscles.</td><td>Activity Plan for Group:
This skill is practiced continuously on the track, rather than as a set activity.
Include some of the activities found under "Progressions" as fun activities during track training days.
Note the difference that occurs if the riders try "spinning" when fatigued (end of workout) vs. when fresh (earlier in workout). Beginners should work on form when fresh, more advanced riders can work on form when fresh and when more fatigued.</td></tr>
<tr><td>Errors and Corrections:
(E) Tension in upper body resulting in poor technique e.g. cannot maintain straight line, or "bouncing" when riding at high rpm. (C) Experiment with selectively relaxing upper body, beginning with hands (open and/or wiggle fingers while riding).</td><td>Observation Plan:
Watch riders pass from track side- look for "bouncing" or inability to ride straight lines.</td></tr>
<tr><td colspan="2">Summary/Wrap-up:
Learning to "spin" at high rpm allows a rider to use (or respond to) a wider range of speeds, while reducing load on the pedalling muscles. At first this is less efficient but as the rider adapts to high rpm pedalling, it eventually becomes more efficient. Ability to "spin" is essential to success in many track events.</td></tr>
</table>

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Smooth riding on a line

Describe the skill/tactic: Ability to ride in a straight line without wavering, while pedalling at high rates from 120 to 160 rpm. This skill is related to high rpm pedalling (see above).	Set-up and Equipment: Track bicycle and selection of gears. Rollers.
Teaching Points: • Relax the upper body, especially the shoulders, arms and hands. • When trying to stay on a painted line, look about 3 to 5 m ahead rather than down at the line (keep head up). • When transitioning into and out of the bankings, the rider has to steer slightly by leaning (not with the handlebars) to stay on the line. • Learn to relax the upper body and "let the legs spin".	Demonstration Plan: Have cyclists watch an accomplished rider on rollers, pedalling at up to 160 rpm. Point out smooth technique and maintenance of a straight line.
Progressions: • This skill requires extensive practice over months and years. • Try holding different lines, (e.g. sprinters line, stayers line) to see how the track differs at different points. • Try flying laps riding on the sprinters line. • When the rider is comfortable on rollers (not a fixed trainer), these are excellent for developing smooth straight riding. Try setting up a mirror so the rider can assess their smoothness. Work to maintain smoothness by relaxing non-pedalling muscles.	Activity Plan for Group: • This skill is practiced continuously on the track, rather than as a set activity. • Include some of the activities found under "Progressions" as fun activities during track training days. • Note the difference that occurs if the riders are fatigued (end of workout) vs. when fresh (earlier in workout). Beginners should work on form when fresh, more advanced riders can work on form when fresh and when more fatigued.
Errors and Corrections: • (E) Tension in upper body resulting in poor technique e.g. cannot maintain straight line, or "bouncing" when riding at high rpm. (C) Experiment with selectively relaxing upper body, beginning with hands (open and/or wiggle fingers while riding).	Observation Plan: • Watch riders pass from track side- look for inability to ride straight lines.
Summary/Wrap-up: Ability to ride a smooth straight line is important for both safety and efficiency. Energy is wasted when wavering. This is something to work on every time you are on the track.	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Using the banking for positioning

Describe the skill/tactic: Riding up the banking slows you down, dropping down the banking speeds you up. Therefore riders can use the banking to change position relative to other riders. This requires timing and skill to remain safe and avoid crashes.	Set-up and Equipment: Track bicycle. Clear track- no other riders on the track.
Teaching Points: • Ride a steady speed on the track. While maintaining the same cadence, try climbing toward the top of the banking. What is the effect? Try dropping down smoothly. Effect? • Have a skilled rider lead a lap while the learner follows. Do one lap following the sprinters line. On the next lap have the learner experiment by climbing/descending the banking. How does this affect position relative to the leader? • Try climbing the banking early, at the transition. Try in the middle of the banking. Differences?	Demonstration Plan: Use two skilled riders to demonstrate the skill. Have the group observe from the infield at one banking while the coach provides commentary.
Progressions: • Perform the skill at increasing speed. • Move to changing the lead as the next skill (see next sheet). • When riders can change the lead on the banking, move toward changing position in a pack of 4 or 5 riders, as in a points or elimination race.	Activity Plan for Group: • Initially send pairs of riders- a more experienced rider leading a learner. Space the pairs about 5 seconds apart. • When learners can use the full banking (e.g. climbing to top) increase speed of the pairs. • Move to the “changing the lead” skill next.
Errors and Corrections: • (E) Rider mistimes return to leader’s wheel and has to accelerate or brake. (C) Correct by going higher or lower up banking on next attempt.	Observation Plan: Stand in infield close to exit of one banking so riders can hear your comments as they pass.
Summary/Wrap-up: This is a fundamental skill in many races: sprint, team pursuit, scratch and elimination, etc. It also varies from track to track as every banking is different. Riders should spend time practicing this skill as they become familiar with each new track.	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Changing the lead team pursuit-style

Describe the skill/tactic: *(This skill builds on "using the banking for positioning".)* Riding up the banking slows you down, dropping down the banking speeds you up. A leader swinging up the banking will lose speed and can re-join a line of riders at the rear. This requires timing and skill to remain safe and avoid crashes.	Set-up and Equipment: Track bicycle. Clear track- no other riders on the track.
Teaching Points: • Have a learning rider lead a lap while a skilled rider follows on his/her wheel. Have the learner experiment with changing the lead by climbing the banking. How does this affect position relative to the follower? • Start with changing the lead early, at the entrance to the transition.	Demonstration Plan: Use two skilled riders to demonstrate the skill. Have the group observe from the infield at one banking while the coach provides commentary.
Progressions: • Add riders: start with a pair, then 3, etc. • Perform the skill at increasing speed.	Activity Plan for Group: • Initially send pairs of riders- a more experienced rider following a learner. Space the pairs about 5 seconds apart. • When learners can use the full banking (e.g. climbing to top) increase speed of the pairs. • Move from pairs to threes, etc.
Errors and Corrections: • (E) Rider mis-times return to follower's wheel and has to accelerate or brake. (C) Correct by going higher or lower up banking on next attempt.	Observation Plan: Stand in infield close to exit of one banking so riders can hear your comments as they pass.
Summary/Wrap-up: This skill is the basis of changing the lead in team pursuit, but is also a fundamental skill in many races such as scratch and elimination, etc. It also varies from track to track as every banking is different. Riders should spend time practicing this skill as they become familiar with each new track.	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Hard accelerations on the straights

<table>
<tr>
<td>Describe the skill/tactic:

All-out accelerations both seated and out-of-saddle on the straightaway sections of the track. Riders should be comfortable riding out-of-the-saddle, ideally for a full lap including on the banking, before working on this skill.</td>
<td>Set-up and Equipment:

Track bicycle.</td>
</tr>
<tr>
<td>Teaching Points:
• Begin with single riders spaced on the track.
• Riders accelerate sitting in the saddle as they exit one banking, and ease their effort as they enter the next banking.
• Focus on maintaining a straight line while accelerating.</td>
<td>Demonstration Plan:

Use two experienced riders to demonstrate the skill, first seated then out of saddle. Have group observe from infield along one straightaway. Coach should point out how the demonstrators maintain a straight line while accelerating.</td>
</tr>
<tr>
<td>Progressions:
• Single riders, move to accelerating out-of-saddle as they exit the banking.
• Pairs of riders, doing seated, side-by-side sprints on the straightaways.
• Pairs doing out-of-saddle sprints on straightaways.
• Progress to next skill “using the banking to accelerate” (see next sheet).</td>
<td>Activity Plan for Group:
• Begin with single riders spaced on the track.
• Riders accelerate sitting in the saddle as they exit one banking, and ease their effort as they enter the next banking. Coach may use a whistle or shout “go” to initiate the efforts.
• Unless some riders are having trouble with the skill it should be possible to work through seated and out-of-saddle acceleration in a single session, then call the riders in to pair them for the next progression.</td>
</tr>
<tr>
<td>Errors and Corrections:

• (E) Rider lacks upper body strength or does not counteract leg force with arms while accelerating, resulting in poor acceleration. (C) Point out need to use both arms together in seated acceleration, and alternating arms in out-of-saddle acceleration.
• (E) Rider does not maintain straight line while accelerating. (C) Rider should relax arms somewhat and keep head up; he/she may be pulling too hard on handlebars to counteract leg force.</td>
<td>Observation Plan:

Stand in infield at trackside, about midway between the bankings.</td>
</tr>
<tr>
<td colspan="2">Summary/Wrap-up:
This is a fundamental skill for all track events, including the start of pursuit and 1000m/500m events. Smooth application of power will maximize acceleration while minimizing energy-wasting wavering and wobbling.</td>
</tr>
</table>

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: Using the banking for accelerating

Describe the skill/tactic: Use gravity to launch all-out accelerations both seated and out-of-saddle, by dropping down the banking. *Riders should be comfortable riding out-of-the-saddle, ideally for a full lap including on the banking, before working on this skill.*	Set-up and Equipment: Track bicycle.
Teaching Points: • Begin with single riders spaced on the track. • Riders enter the banking "high" and accelerate sitting in the saddle by dropping down at the mid-point of the banking. Start at the stayers line and go higher as riders gain confidence. • Sprint along the sprinters line, then ease effort and swing up as they enter the next banking. Repeat. • Focus on managing a smooth transition to the straightaway in order to maintain a straight line while sprinting.	Demonstration Plan: Use an experienced rider to demonstrate the skill, first seated then out of saddle. Have group observe from infield along one straightaway. Coach should point out how the demonstrators maintain a straight line while accelerating.
Progressions: • Single riders, move to accelerating out-of-saddle as they drop down the banking. • Pairs of riders, doing seated, side-by-side "match sprints". • Pairs doing out-of-saddle sprints.	Activity Plan for Group: • Begin with single riders spaced on the track. • Riders accelerate sitting in the saddle as they drop down from the mid-point of the banking, and ease their effort as they enter the next banking. Coach may use a whistle or shout "go" to initiate the efforts.
Errors and Corrections: • (E) Rider lacks upper body strength or does not counteract leg force with arms while accelerating, resulting in poor acceleration. (C) Point out need to use both arms together in seated acceleration, and alternating arms in out-of-saddle acceleration. • (E) Rider does not maintain straight line while accelerating. (C) Rider should relax arms somewhat and keep head up; he/she may be pulling too hard on handlebars to counteract leg force.	Observation Plan: Stand in infield at trackside, about midway between the bankings.
Summary/Wrap-up: This is an important skill for all track events, especially sprints and the start of flying laps. Smooth application of power will maximize acceleration while minimizing energy-wasting wavering and wobbling.	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: _____

Describe the skill/tactic:	Set-up and Equipment:
Teaching Points:	Demonstration Plan:
Progressions:	Activity Plan for Group:
Errors and Corrections:	Observation Plan:
Summary/Wrap-up:	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: _____

Describe the skill/tactic:	Set-up and Equipment:
Teaching Points:	Demonstration Plan:
Progressions:	Activity Plan for Group:
Errors and Corrections:	Observation Plan:
Summary/Wrap-up:	

Cycling Skill/Tactics Planner

Use this sheet to plan a skill/tactic development session.

Skill/Tactic: _____

Describe the skill/tactic:	Set-up and Equipment:
Teaching Points:	Demonstration Plan:
Progressions:	Activity Plan for Group:
Errors and Corrections:	Observation Plan:
Summary/Wrap-up:	

Creating and Calling a Schedule

Objective: To create a schedule, and help the cyclist learn to ride to a schedule, to assist the cyclist to develop pacing skills. A schedule is a tactical aid for riding a pursuit.

Creating the Schedule: A number of schedule calculators are available. One can be found at: http://www.fixedgearfever.com/modules.php?name=Downloads&d_op=getit&lid=6
(We believe this is public domain- use at your own risk.)

The variables in a schedule are:

- *Size of track* in meters (e.g. 250 m)
- *Number of laps* per event (e.g. 3000 m pursuit/250 m track = 12 laps)
- *Start differential*, which is the extra time needed to accelerate on the first lap, usually in the range of 5 to 10 seconds. Assess this by timing two laps from a standing start; the difference between first lap time and second lap time is the start differential. For this example we will use 6 seconds.
- *Average lap time* based on the cyclist's pursuit time in training, minus the start differential: e.g. 3 minutes 55 seconds = 235 seconds, subtract 6 seconds start differential = 229 seconds, divided by 12 laps = 19.1 seconds average lap time.

The final step is to add the start differential to the first lap time (19.1 + 6 = 25.1 seconds for the above example) and then complete the schedule, adding the average lap time to the first lap for each lap:

Lap #	Time
1	25.1
2	44.2
3	1:03.2
4	1:22.3
5	1:41.4
6	2:00.5
7	2:19.6
8	2:38.7
9	2:57.7
10	3:16.8
11	3:35.9
12	3:55.0

Calling the Schedule: The coach stands at the pursuit start line. If the cyclist is riding faster than the schedule, walk toward the cyclist a few steps and if necessary signal the rider to slow. If the rider is behind schedule walk past the pursuit start line, that is, away from the rider as s/he comes toward you. This provides a visual cue of how much ahead of or behind schedule the rider is.

Self-assessment Sheet #1

Practice Coaching #1: Explanation, demonstration, organization, and safety

Criteria	Yes	No
Selection of the activity		
The activity selected is appropriate for the age of the participant		
The activity selected is appropriate for the ability of the participant		
Comments/suggestions:		
Safety before beginning the activity		
Equipment is appropriate for the age/size of the participant		
Equipment is in good repair and is properly adjusted		
The playing area is checked for hazards		
Comments/suggestions:		
Explanation		
Coach is positioned such that all participants can see and distractions are minimized		
Explanation and demonstration last 90 seconds or less in total time		
The purpose of the exercise/activity is clearly stated		
One or two key points are emphasized (not necessarily technical aspects)		
Safety points are emphasized, if appropriate		
Coach speaks clearly and loud enough for all to hear		
The choice of words is appropriate for the age of the participants		
Participants are checked for understanding		
Comments/suggestions:		
Demonstration		
All the participants can clearly see the demonstration		
The speed of the demonstration allows participants to see accurately what they are to do		
Coach demonstrates in a manner that a participant would be able to perform the activity		
Coach reinforces key points while he/she demonstrates		
Participants are checked for understanding		
Comments/suggestions:		
Organization		
A sufficient area is used for the activity		
Available equipment is used optimally		
Participants are active for the majority of the time (minimum waiting in line)		
Comments/suggestions:		
Safety during the activity		
If a potentially hazardous situation presents itself, coach deals with it immediately		
Comments/suggestions:		

Self-assessment Sheet #2

Practice Coaching #2: Skill progression, intervention, and communication

Criteria	Yes	No
Skill progression		
The progression for skill development is appropriate for the age/ability of the participant		
Coach focuses on the appropriate key points for the skill to be developed		
Coach adjusts the activity for more advanced and less advanced abilities within the group		
Comments/suggestions:		
INTERVENTION		
Coach scans the entire group constantly and intervenes with a variety of participants		
Coach looks for input/feedback from the participant		
Correction or reinforcement is clear and a visual is provided		
Correction or reinforcement is brief and participant returns quickly to activity		
Coach focuses on communicating what to do (not what NOT to do)		
Comments/suggestions:		
Communication		
Coach speaks in a calm tone of voice (i.e. does not yell at the participants)		
Coach uses language that the participants can easily understand		
Coach refrains from the use of foul language		
Words and body language used in the correction or reinforcement are positive *		
When praise is given, it is specific, not general (e.g. "you are doing ___well", not "nice one!")		
Coach acts and speaks with enthusiasm *		
Comments/suggestions :		

**This looks like:* *Smiles; nods in the affirmative*

**This sounds like:* *Cheers; "Sally, you did ___ very well. Way to go!"; "Johnny, I see that you are improving at ___. Great job!"*

** This feels like:* *High fives; safe pats on the back; a hand shake of congratulations (use these only if the participant is clearly comfortable with physical contact from you)*

Counting interventions during the activity	Number
Duration of the activity in minutes (when participants are practicing, excluding explanation & demo)	
Total number of interventions with the entire group	
Total number of interventions with individual participants	
Total number of different participants with whom the coach intervened	

Remember, more is not necessarily better. The total numbers are only to give you an indication of how often you are intervening and whether you are moving among the group or focusing only on certain participants.

Workshop Evaluation – Coaches
READY TO RACE! TRACK SKILLS & TACTICS WORKSHOP

Date of Workshop: **Location:**

Please fill in the form and hand it to the facilitators before you leave. Your comments are important to the ongoing development of the National Coaching Certification Program.

Please tell us a bit about your coaching:

What age of participants will you be coaching? _____

How many participants will you be coaching? _____

How long is their competitive season? _____

How many times a week do they compete? _____

How many times a week do they practice? _____

How long are the practices (in hours/minutes)? _____

Have you coached before? If so, for how long, with what age group, and in what sport?

Please answer the following:

Having taken this workshop, I now have a better understanding of my tasks and responsibilities as a coach

1 *2* *3* *4* *5*
Strongly disagree *Strongly agree*

Having taken this workshop, I now have a clear understanding of how the sport is modified for different levels or stages of athlete

1 *2* *3* *4* *5*
Strongly disagree *Strongly agree*

I can respond to an ethical situation in a way that is consistent with the NCCP values and philosophy

1 *2* *3* *4* *5*
Strongly disagree *Strongly agree*

I can adapt a practice if required to do so, and understand the structure of a complete practice

1 *2* *3* *4* *5*
Strongly disagree *Strongly agree*

I can organize and run the activities within a practice in a way that is suitable for my athletes

1 *2* *3* *4* *5*
Strongly disagree *Strongly agree*

I can deal with the safety aspects of a practice

1 *2* *3* *4* *5*

Strongly disagree *Strongly agree*

I can do a better coaching job as a coach

1 2 3 4 5
Strongly disagree *Strongly agree*

During this workshop I had several opportunities to work on finding solutions to situations that are relevant to my coaching

1 2 3 4 5
Strongly disagree *Strongly agree*

During this workshop I had several opportunities to exchange with and learn from others

1 2 3 4 5
Strongly disagree *Strongly agree*

I found the *Workbook*, *Reference Material*, and *Portfolio* to be relevant to my coaching needs, clear, and to contain useful information

1 2 3 4 5
Strongly disagree *Strongly agree*

I found the *Workbook*, *Reference Material*, and *Portfolio* to be organized clearly and logically and easy to use

1 2 3 4 5
Strongly disagree *Strongly agree*

I would recommend this workshop to other coaches I know

1 2 3 4 5
Strongly disagree *Strongly agree*

Please answer the following questions:

Would there be anything you would like to see added to this workshop? If so, what would it be?

Would you be interested in attending another workshop for coaches? If so, what would you like to see included in the next workshop you attend?

Are there any other comments you wish to add?

Thank you for your feedback, and best wishes in your coaching

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Cycling Canada
Long-Term Athlete Development
TRACK CYCLING

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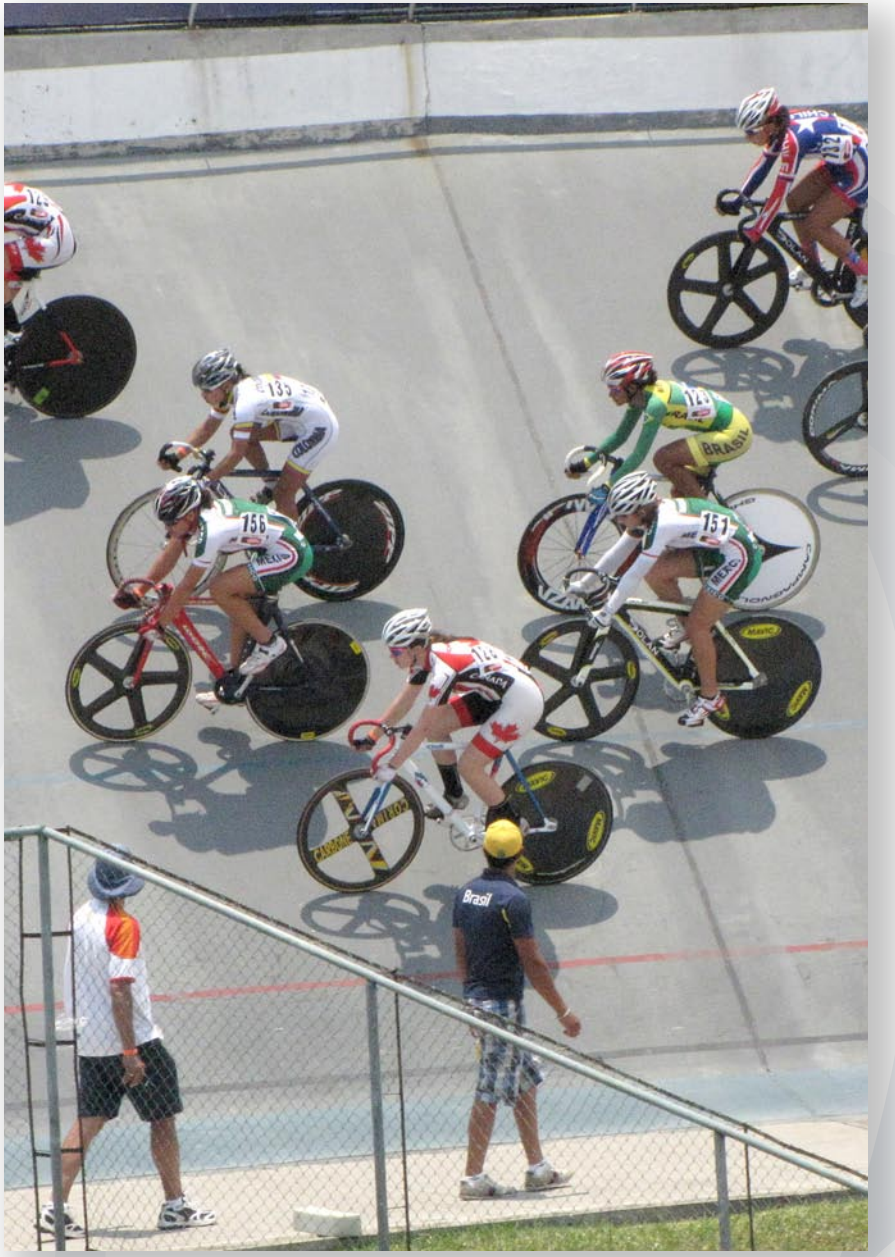
Canada

Table of Contents



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1 – On Track for Success

Track cycling has a long and storied history: the first World Championships was held in 1893. Over the years Canadians have enjoyed much success in international track competition, with legends like Torchy Peden, Jocelyn Lovell, Gord Singleton, Curt Harnett, Karen Strong. More recently Lori-Ann Muenzer, Tanya Dubnicoff, Tara Whitten and Zach Bell have taken medals at the Worlds and Olympics, and Canada has also had success in Paralympic competition.

Canada's champions, whether in the 1930's, 1970's or the 2000's, rarely started out in cycling as track specialists. Success has come despite the fact that Canada has never had many cycling tracks ("velodromes"). Some athletes find the track early, but most migrate from other cycling disciplines, or compete on the track while also competing in other forms of racing. Whether or not a cyclist competes on the track, coaches and riders agree that track riding is helpful to skill development. Every cyclist should try the track!

Track cycling can be a key part of a cyclist's Long-Term Athlete Development (LTAD). We see three main opportunities: *Track for Development, Track for Performance, and Track for Life. Track for Development* is a place for young and developing cyclists to gain enhanced bike handling and competition skills, for track and for cycling in general. This is a vital developmental experience for all cyclists who can access a velodrome. *Track for Performance* is a stream for cyclists of all ages to work toward excellence and podium performances in international competition on the track. *Track for Life* is an opportunity for mature cyclists to build skills and fitness, try a new and exciting kind of cycling competition, and perhaps to extend or renew a racing career.

This document is a guide to success in track cycling, based on principles of Long-Term Athlete Development. LTAD is based on sport science research combined with the practical experience of working with thousands of athletes and coaches to develop a comprehensive set of principles for effective athlete development. LTAD is more than a model - it is a system and philosophy of sport development. Since athlete and participant development is at the core of Cycling Canada's mission, LTAD is key to everything we do, whatever our role or level within the cycling system. Our obligation is to help every Canadian cyclist fulfill their aspirations and be the best they can be.

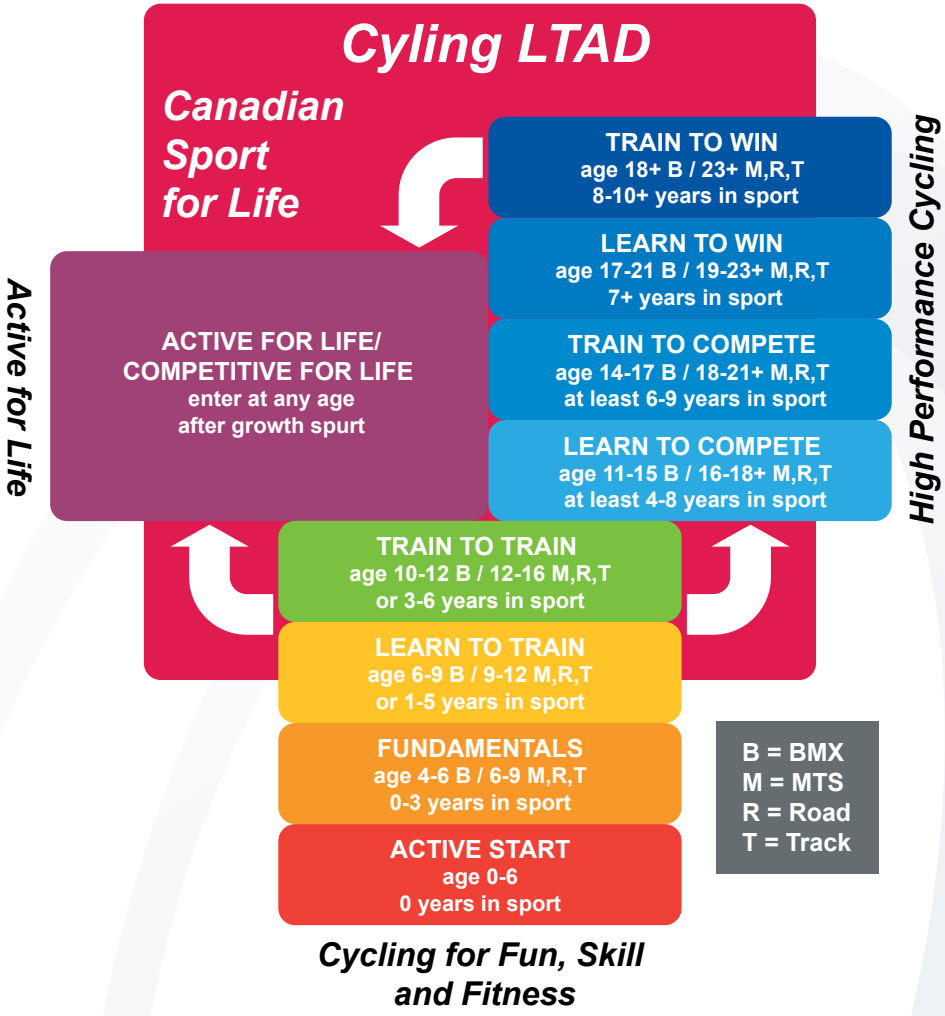
Our goal is not simply to help Canadian cyclists onto international podiums, but to ensure that every athlete can enjoy participation in cycling for a lifetime. Despite all the benefits and fun to be had from track riding and racing, more cyclists, coaches and officials are needed. Track, with its long history, great traditions, and development possibilities, will be a vital part of Canada's cycling future.

2 – The Long-Term Athlete Development Model

LTAD is a model of life-long development in which the athlete passes through stages, from Active Start to Active for Life. All individuals pass through the Active Start, FUNdamentals and Learn to Train stages from birth through adolescence, and acquire a critical foundation of physical literacy or competence in basic movement and sport skills. From there they progress as far as their will and potential carry them. Only a few reach the level of high performance of the Train to Win stage. The *Cycling Canada LTAD volume 1* document outlines the stages of development for cyclists including Track. You can also find other resources at www.canadiansportforlife.ca

Young riders (before or near puberty) participating in Track for Development are typically in the Learn to Train or Train to Train stages of LTAD. It is essential to understand that when working with young participants, we are not simply preparing them for our sport, but for all sports- and that by offering well-rounded development that builds physical literacy, we are also preparing them for a more active, healthy lifestyle. Young athletes of the same chronological age can vary widely in their development, ability to learn skills, and emotional readiness for competition. Over-emphasis on skills and tactics the athlete is not ready to learn, or intensive competition, can take the fun out of sport. Every young athlete deserves a program appropriate to his or her individual stage of development.

The Cycling model has 9 stages, which take a rider from learning to ride a bicycle through to participation for life. Not all cyclists pass through the Excellence stages; after learning the basics in the early stages an individual can move to the Active for Life stage at any time. Active life-long participation is as important as competitive success.



3 – Growth and Development

Long-term Athlete Development (LTAD) is a pathway for optimal training, competition and recovery throughout an athlete's career, particularly in relation to the important growth and development years of young people.

LTAD stages are based on "sport years" which is the time spent developing in sport. The prior sport experience of the athlete, combined with his/her individual stage of physical, mental and emotional development, is much more important than chronological age in determining what the athlete is ready for. Notice that the overlap between "sport years" in each stage may permit some athletes to progress through more than one stage per year. *It is strongly recommended the athlete not be "pushed" through more than two stages per year, no matter how "exceptional" they seem to be.*

It is also very important to take advantage of sensitive periods of adaptation as the child grows and develops. The mind and body are most able to develop in specific ways at specific times. Skills, for example, are learned quickly from about age 8 to 12. Physical strength, power and endurance can be developed after the growth spurt, also called "Peak Height Velocity" (PHV). *See the glossary for definitions.*

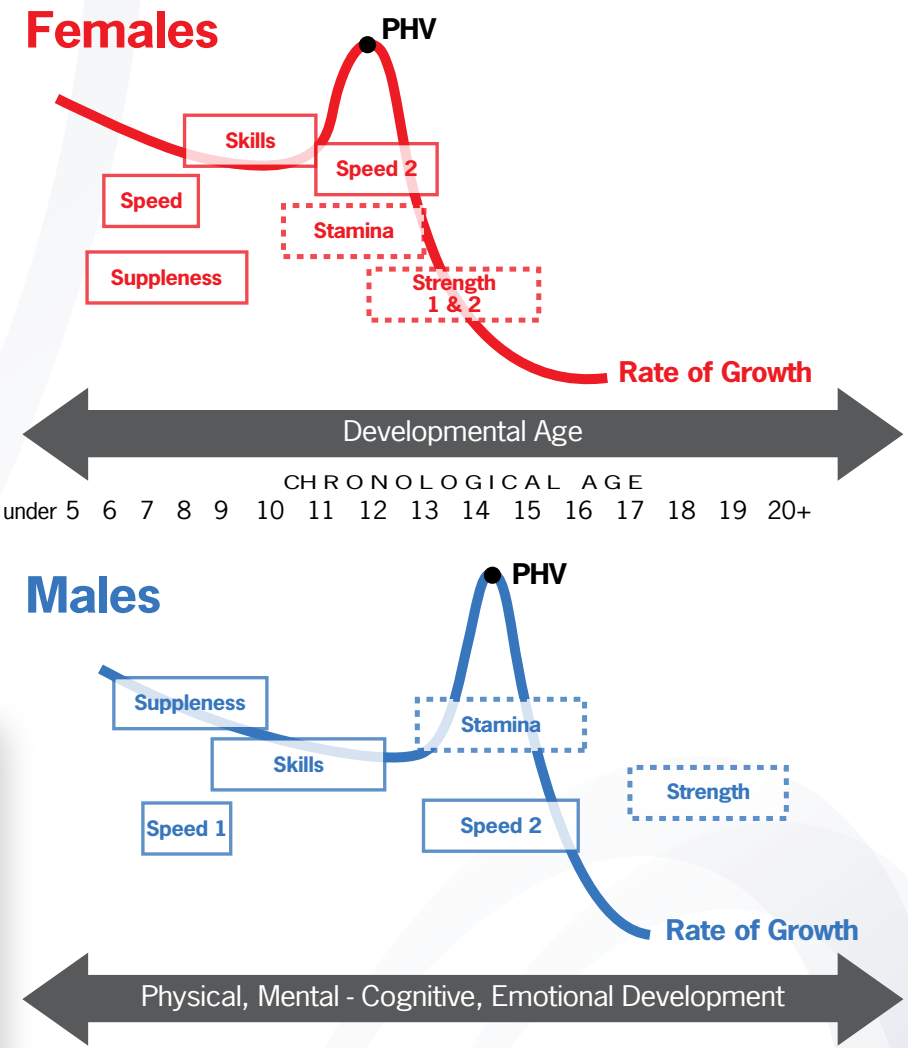


Diagram: Enhanced Periods of Adaptation in Relation to Rate of Growth (courtesy Canadian Sport for Life)

4 – Developing Winning Skills

Track riding requires specific skills including starting, riding and passing on a banking, pedaling a fixed gear at high leg speeds, pacing and more. These skills are best developed when the athlete is from 8 to 12 years old, a sensitive period of adaptation for the body and mind. While track skills can be developed at any age, there are advantages to early skill development. Excellent skills are required to reach high performance in Track, and they also transfer to other kinds of cycling and to other sports. It makes sense to base every cyclist's track experience on a solid foundation of winning skills.

What is the best way to develop those winning skills? Here are the lessons learned by top coaches and sport scientists:

- Skills learning can only occur if the learner is interested and engaged. Since young children have short attention spans, the best learning is through fun games specifically designed to build skills.
- Even in older children and adults, skills are learned best when learners use an experimental approach, trying out variations of the skill to see what works best. The coach provides feedback only when performance falls outside pre-determined limits, and questions the athlete afterward, effectively asking the athlete to discover determine what works for him/herself.
- Randomized practice, "difficult-first" instruction, and use of questioning and video to enhance feedback are all part of top skill development programs.
- When learners are highly motivated, they engage in "deliberate practice". This is a highly focused, individual approach of trying a skill hundreds of times to perfect it. Nobody can *make* an athlete use deliberate practice- the urge comes from within. When a coach sees an athlete engaging in deliberate practice, he or she should support and guide it.

What does this look like in cycling? Here are some examples for *Track for Development* stages:

- Deliberate use of participation in other sports to develop well-rounded athleticism on land, in water, and on ice and snow, developing balance, agility, object-control (e.g. ball- or puck-handling) and eye-hand and eye-foot coordination.

- Riders playing all kinds of coach-led games, on and off the bike, to develop a wide range of skills.
- Riders given challenges to work out by themselves, with coaches intervening and explaining only when necessary; in other words, "try, then talk" not "talk, then try".
- A good mix of relaxed fun and intense concentration during activities.
- Coaches who know how to mix up activities and try different approaches to help riders "get" a skill- not just by telling, but by demonstrating, trying different movements, and watching different situations and advanced riders.
- Intentional use of events such as sprint, pursuit, points race and madison to learn different skills (positioning, pacing, pack riding and contact and team tactics).
- Advanced riders helping newer riders out, and being role models for them.

The following Track Skills Grid shows a repertoire of Track skills and suggests when they can be developed. Note that "Training Age (Sport Years)" should be interpreted as years of participation in organized cycling, not as years of track riding.

TRACK SKILLS DEVELOPMENT GRID

Pathway	Fundamental				Learn to Train			Train to Train			Learn & Train to Compete		Learn & Train To Win
Chronological Age – M	6	7	8	9	10	11	12	13	14	15	16	17	18+
Chronological Age – F	5	6	7	8	9	10	11	12	13	14	15	16	17+
Training Age (Sport Years)	0 – 3 years				1 – 5 years			3 – 6 Years			4 – 9 years		>8 years
Skill Development	ACQUISITION (A) Introduction of skill (movement patterning) Cognitive Stage				CONSOLIDATION (C) Stability of skill through practice (correct execution in variable conditions) Associative Stage			REFINEMENT (R) Fine tuning of skills (Minor improvements and creative solution under all conditions) Autonomous Stage					

NCCP Coaching Contexts		Community Initiation	Competition – Introduction	Comp-Dev	Comp-HP
Foundation Skills	Balance	**A – C**	**R**		
	Agility	**A – C**	**R**		
	Run Jump Throw+	**A – C**	**R**		
	Basic cycling skills	**A – C**	**R**		
	Other cycling disciplines e.g. BMX	**A – C**	**R**		
Motor Skills	Increase leg speed (appropriate gearing)	**A – C – R**	**R**		
	Balance	**A – C – R**	**R**		
	Agility on bike	**A – C – R**	**R**		
Technical Skills- Start & Stop	Body position start	**A – C – R**	**R**		
	Pedal position start	**A – C – R**	**R**		
	First pedal strokes	**A – C – R**	**R**		
	Modulate speed	**A – C – R**	**R**		
	Track stand	**A**	**C – R**	**R**	
Technical Skills- Banking	Minimum speed	**A**	**C – R**		
	Low & high lines	**A**	**C – R**		
	Pace line	**A**	**C – R**		
	Accelerate: drop	**A**	**C – R**		

NCCP Coaching Contexts		Community Initiation		Competition – Introduction	Comp-Dev	Comp-HP
Technical Skills- Sprinting	In saddle accelerate		A – C	R		
	Out of saddle acceleration		A – C	R		
	Hop (sideways)		A	C – R		
	Contact with riders (parking lot)	A	C – R			
	Contact with riders (on track)		A – C	R		
Tactical Skills	Track start		A	C	R	
	Cornering lines		A	C	R	
	Pace and Pursuit schedule		A	C	R	
	Assess track & opponents & choose strategy			A	C – R	R
	Assess track & choose gearing			A	C – R	R
	Madison skills and tactics			A	C – R	
Mental & Decision Skills	Use track layout to improve position			A	C – R	
	React to crashes and maintain speed/ position			A	C – R	
	Visualization			A	C	R
	Critical viewing of other races (live or video) for learning			✔	✔	✔
	Focus & re-focus between heats			A	C	R
	Develop ideal performance state (IPS) routine			A	C	R

5 – Track for Development: Early LTAD Stages

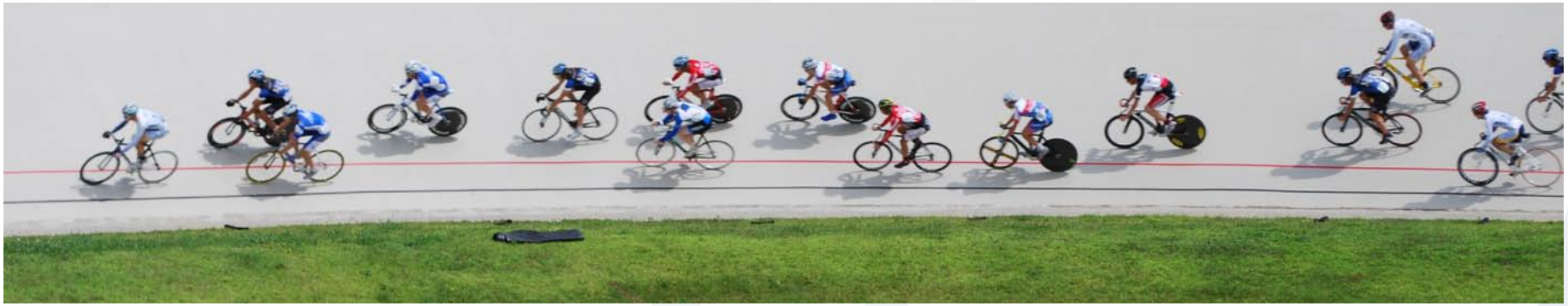
The following table shows key Track cycling developmental factors for the first LTAD stages from Active Start to Train to Train, and Active for Life. For more information refer to the CCC *LTAD Volume 1*. Stages are based on both chronological age and "sport years" which is the time the athlete spent developing in sport. For example a cyclist with 3 years experience may be in Train to Train stage at age 30.

	ACTIVE START Age 0 - 6 0 - 1 years in sport	FUNDAMENTALS Age 6 – 8 or 0 – 3 years in sport	LEARN TO TRAIN Age 9 – 12 or 1 – 5 years in sport	TRAIN TO TRAIN Age 12 – 16 or 3 – 6 years in sport	ACTIVE FOR LIFE any age after growth spurt
	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Defining the Stage	• "Develop movement literacy" Participant builds basic movement skills though a wide variety of unstructured fun physical activities on land, in water, and sliding on snow and ice. • Later in the stage the participant learns to ride a bike.	• "Developing physical literacy" Participants take basic movement skills and adapt them to sport, while learning basic sport concepts of rules and competition. • Learn basic sport skills through participation in multiple sports including cycling.	• "Developing skills" Participants build on a base of physical literacy formed in the Active Start and FUNdamentals stages. • Introduction to a sport training program. • Major emphasis on acquiring and developing cycling skills. • Participation in multiple sports including cycling.	• "Building the engine" • Enjoy and appreciate the sport of Track cycling • Participate in a progressive Track cycling training program. Build fitness by practicing skills in race and game situations. • Major emphasis on developing and refining Track cycling skills. • Participation in multiple sports.	• "Maintain activity, give back" • Enjoy and appreciate the sport of cycling • Emphasis on maintaining fitness through year-round activity. • Competition as desired. • Participation in multiple sports including cycling. • Look for leadership opportunities e.g. coaching, officiating
Participant Profile	• From age 0 to 6 years old, a child is a "learning machine" full of curiosity and always on the move. Brain connections are being made and the body is growing rapidly. • The child has a short attention span and needs lots of variety and frequent breaks. • Social play with other children develops gradually, but the child loves to imitate and play with parents. • Limited ability to grasp concepts like sport rules- let them create their own games.	• From age 6 to 9 years old, a child learns to participate in group activities. He/she expects to be directed by the coach and loves to follow. Due to short attention span, can quickly become frustrated or lose interest. • The child likes to show off skills and be the center of attention. Participation in sport can be a source of pride as long as success is praised and reinforced.	• Moving into formalized sport and competition. • Windows of trainability are important: unloaded speed (e.g. leg speed) and skills are trainable in this stage. • Participant typically most interested in being with friends and experiencing the fun of competition. • Participant lacks long-term goal focus and may not be interested in "serious training". Focus on fun.	• Well-adapted and becoming more confident about sport. • Becoming serious about Track- "loving the sport". • Participant may be any age, but if under age 12-15 windows of trainability are critical. • Participant wants to compete, and positive race experiences are important.	• Confident about sport participation. • Enjoys cycling. • Participant may be any age after adolescence (basic physical literacy is developed). • Sport participation is important to physical and emotional well-being and is a part of social life.

	ACTIVE START Age 0 - 6 0 - 1 years in sport	FUNDAMENTALS Age 6 – 8 or 0 – 3 years in sport	LEARN TO TRAIN Age 9 – 12 or 1 – 5 years in sport	TRAIN TO TRAIN Age 12 – 16 or 3 – 6 years in sport	ACTIVE FOR LIFE any age after growth spurt
	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Basic Cycling Objectives	• Learn how to ride a bike • Learn the most basic cycling skills: balance, steering, braking. • Build general activity level and movement skills through cycling and other sports.	• Learn how to ride a bike • Learn basic cycling skills: straight-line riding, using controls (e.g. hand brakes), pedal standing up. • Build general activity level and movement skills through cycling and other sports.	• Learn advanced cycling skills. • Adapt to sport training. • Develop good position on bicycle and pedaling technique and speed. • Build general activity level and fitness through cycling and other sports.	• Consolidate advanced cycling skills • Work with a good coach to adapt to Track cycling specific training routine • Enter regular competition • Build cycling fitness through cycling and other sports.	• Maintain regular physical activity • May compete as desired • Find ways to give to sport as a coach, official or leader.
Track-specific Objectives & Support	• For children age 6 or younger, explain that the track, racing, etc are for riders who have learned sound basic cycling skills. • Provide a “mini-track” with suitable terrain for new riders- the equivalent of the “bunny hill” in downhill skiing. • For more advanced riders, introduce basic track riding, skills and etiquette. Do not use placings, times, or standings if fun competitions are permitted. Instead, praise riders for good skill execution and trying hard.	• Provide a “mini-track” such as a grass or flat track for new riders. • Begin to use “the big track” (regular track) but do not introduce advanced cycling skills until the basics are mastered. • Introduce basic track riding, skills and etiquette. • Develop higher pedal rates e.g. 100-120 revolutions per minute (rpm) • Minimize use of placings, times, or standings in competitions. • Use a system of identifying and rewarding good skill execution.	• Use the regular track but continue to refine basic skills using “off-track” sessions. • All the key technical skills, and some basic tactical (positioning) skills, are learned in this stage. The main focus is skill development not competition. • De-emphasize competition results based on place or standings in competitions. Emphasize more “controllable” aspects such as times, good positioning, good use of skills. • Continue to develop higher pedal rates e.g. 120-140 rpm.	• Continue to refine basic skills using “off-track” sessions. • All the key technical skills are consolidated in this stage. More advanced tactical skills are added. The main focus is skill and tactical development. • Continue to develop higher pedal rates e.g. 140+ rpm. • Continue to emphasize “controllable” race results such as times, good positioning, good use of skills and tactics.	• Access to equipment and facilities • Access to coach if desired • Access to appropriate sport programs

	ACTIVE START Age 0 - 6 0 - 1 years in sport	FUNDAMENTALS Age 6 – 8 or 0 – 3 years in sport	LEARN TO TRAIN Age 9 – 12 or 1 – 5 years in sport	TRAIN TO TRAIN Age 12 – 16 or 3 – 6 years in sport	ACTIVE FOR LIFE any age after growth spurt
	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Physical Development	• Daily activity: minimum 30 minutes/day for toddlers and 60 minutes/day for preschoolers. • FUN activities on land, in water and air, and sliding on snow and ice. • Encourage running, with stops, starts and changes in direction. • Catching and throwing games using a wide range of soft objects, and balls of different sizes. Start with two hands then progress to using left and right hands to catch and throw. • Balance, jump, slither like a snake, and roll like a rolling pin. Use hands, feet and other body parts to balance, push and jump. Learn to ride a tricycle or bike.	• Physical literacy: further development of basic movement skills including locomotor, object control and balance and agility skills. • Speed, power and endurance through FUN and games • Strength: Introduction to core strength and stability through fun games • Warm up/cool down: Introduce the concept	• Be aware of and monitor maturation that may occur at different rates. • Do not emphasize speed, power or endurance; develop only through FUN and games • Introduction to concept of warm up/cool down	• Be aware of and monitor maturation that may occur at different rates. • Use skill-building activities such as high repetitions of starts or practice races to develop speed, power and endurance. • Strength: Build core strength and stability- using own body weight exercises. • Refine warm up/cool down • Aerobic and anaerobic power: Mix of development through fun and games, and specific development. Note window of trainability at growth spurt (approximately ages 11-12 girls, 12-13 boys).	• Speed, power and endurance through FUN and games • Strength: Build core strength and stability- use own body weight or weights as desired • Aerobic power: Mix of development through fun and games, and specific development. • Participation in multiple sports and activities
Technical Development	• Explore risks and limits in a secure environment. • Learn to ride a bike. • Develop basic cycling skills: turn, climb, descend, accelerate, brake.	• Explore risks and limits in a secure environment • Develop good cycling position and pedaling technique • Begin developing basic Track cycling skills: start, enter/exit the track, ride the banking, accelerate, modulate speed. • Focus on motivating and FUN activities	• Continue to develop new skills in progressively challenging situations. • Consolidate basic Track cycling skills: start, enter/exit the track, ride the banking, accelerate, modulate speed. Later, starts from the rail, develop out-of-saddle on all parts of track. • Learn use of rollers. • Continue to explore risks and limits in safe environment.	• Continue to develop new skills in progressively challenging situations. • Refine basic skills and develop advanced skills. Spin pyramid 100-130 rpm. Introduce start gate. Balancing. Hops. Track stand • Madison to develop contact skills and team tactics. • Independent use of rollers. • Continue to explore risks and limits in safe environment.	• Develop and maintain good cycling position and pedaling technique, cycling skills • Focus on motivating and FUN activities

	ACTIVE START Age 0 - 6 0 - 1 years in sport	FUNDAMENTALS Age 6 – 8 or 0 – 3 years in sport	LEARN TO TRAIN Age 9 – 12 or 1 – 5 years in sport	TRAIN TO TRAIN Age 12 – 16 or 3 – 6 years in sport	ACTIVE FOR LIFE any age after growth spurt
	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Tactical Development	• Watch races. Understand basic concept of racing: idea of "first across the line"	• Learn basic concepts and rules of Track racing: different types of race, heats. • Develop basic tactics, ethics • Watch races for learning	• More advanced concepts and rules of competition. • Develop basic race tactics: gearing, pace, track positioning, drafting, best line on banking, passing. • Basic track rules and etiquette; lines on the track. • Understand different types of track race and how they are won.	• Refine concepts of drafting, pacing, sprinting in racing. Develop concepts of strategy. • Madison and points race to learn team tactics. • Use and understand importance of gearing (warm up, race, cool down).	• Tactics appropriate to level of racing (if desired)
Motor & Mental Skill Development	• Motor learning integrated into practices through games • Focus on motivating and FUN activities	• Motor learning integrated into practices through games • Focus on motivating and FUN activities • Emphasize effort, doing one's best, being a "good sport"	• Motor learning integrated into practices through games. • Develop leg speed (120+ rpm) and reaction time. • Developing: warm up and cool down; focus and attention; race control and aggressiveness. • Develop appropriate attitude to competition: doing one's best, respect for other racers, coaches and officials.	• Motor learning integrated into practices through games. • Develop leg speed (140+ rpm) and reaction time. • Refining: warm up and cool down; focus and attention; race control and aggressiveness. • Develop appropriate attitude to competition: doing one's best, respect for other racers, coaches and officials.	• Mental skill development appropriate to level of racing (if desired)



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	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Training Program	• No organized training in this stage.	• Limited introduction to "training" if desired. • Program is based on fun, games, skill development. • By end of stage, 2-3 x per week, 30-45 mins/session: including all cycling (not track specific).	• Seasonal training program • Participate in multiple other sports and cycling disciplines to build athletic skills. • By end of stage, 3-5 x per week in Track season, 60 min per session.	• Seasonal or annual training program with single periodization • By end of stage, 3-5 x per week in season, 90 min per session.	• Daily physical activity • Training appropriate to level of competition desired, if any • Participation in multiple sport activities
Competition Framework	• No organized competition in this stage.	• Limited introduction to competition if desired and appropriate to athlete. • Late in stage, enter club, regional, provincial races. • Recommended gear restriction 81" or less.	• Recommended gear restriction 88" or less. • Training and competition with others is useful for development in this stage. This may include club programs, training groups, camps, etc. • Introduction to regular competition if desired and appropriate to athlete: Club, regional, provincial races leading to Provincial Championships and Games. • Compete in both speed and endurance events on Track.	• Provincial-level racing; introduce National-level near end of stage including National Championships • Provincial Games • Provincial Training Camps for Team selection. • Compete in both speed and endurance events on Track and continue competition on Road. • Accumulate Track racing experience wherever possible.	• Competition if desired and appropriate to athlete

	ACTIVE START Age 0 - 6 0 - 1 years in sport	FUNDAMENTALS Age 6 – 8 or 0 – 3 years in sport	LEARN TO TRAIN Age 9 – 12 or 1 – 5 years in sport	TRAIN TO TRAIN Age 12 – 16 or 3 – 6 years in sport	ACTIVE FOR LIFE any age after growth spurt
	TRACK FOR DEVELOPMENT				TRACK FOR LIFE
Parents help by…	• Allow lots of room for exploration and risk-taking in a safe environment. • Promote physical activity and healthy eating as a family activity. Role modeling is very important. • Provide short-duration, rapidly changing activities with lots of breaks. Let the child's attention span and interest dictate the activity. • These are the "sampling" years. Support the child to participate in many kinds of activity including many kinds of sport.	• Look for coaches who are National Coaching Certification Program trained. • Continue to support "sampling" participation in many kinds of activity including many kinds of sport. • Support skills, skills, skills. • Emphasize fun, friendships, and honest effort in your child's sport experiences. • Remember children can be far apart in maturation: don't compare to others.	• Look for coaches who are National Coaching Certification Program certified. • Continue to support "sampling" participation in many kinds of activity including many kinds of sport. • Minimize signaling that winning is important; don't ask "how did you do?" but instead emphasize fun, friendships, and honest effort.	• Look for coaches who are National Coaching Certification Program certified in Introduction to Competition. • These are the "support" years. The child is beginning to specialize by reducing the number of other sports- 2 or 3 at most. Parents help by assisting the child to get to practice and competitions, ensuring equipment is safe, and supporting the coaches' decisions. • Don't add pressure to your child by emphasizing winning and performance; instead, remove pressure by letting him/her make their own decisions and supporting them by ensuring they have looked at all options and opportunities.	• Supporting all kinds of sport activity and interests, including learning to coach or officiate. • Supporting non-competitive sport interests.
Coaching	• Parents, family, and teachers are the main "coaches" at this stage. • Track coach should be Let's Ride! Community Cycling Initiation – trained (NCCP)	• Let's Ride! Community Cycling Initiation – trained, or • Coach working toward certification in Ready to Race! Introduction to Competition	• Coach certified in Ready to Race! Introduction to Competition	• Coach certified in Ready to Race! Introduction to Competition	• Coach if appropriate and desired
Testing & Talent ID	• None in this stage.	• None in this stage.	• Introduce performance measurement (by coach) based on performance of Track skills and overall physical abilities.	• Introduce performance measurement (by coach) based on performance of Track skills. • Functional movement screen	• None in this stage.

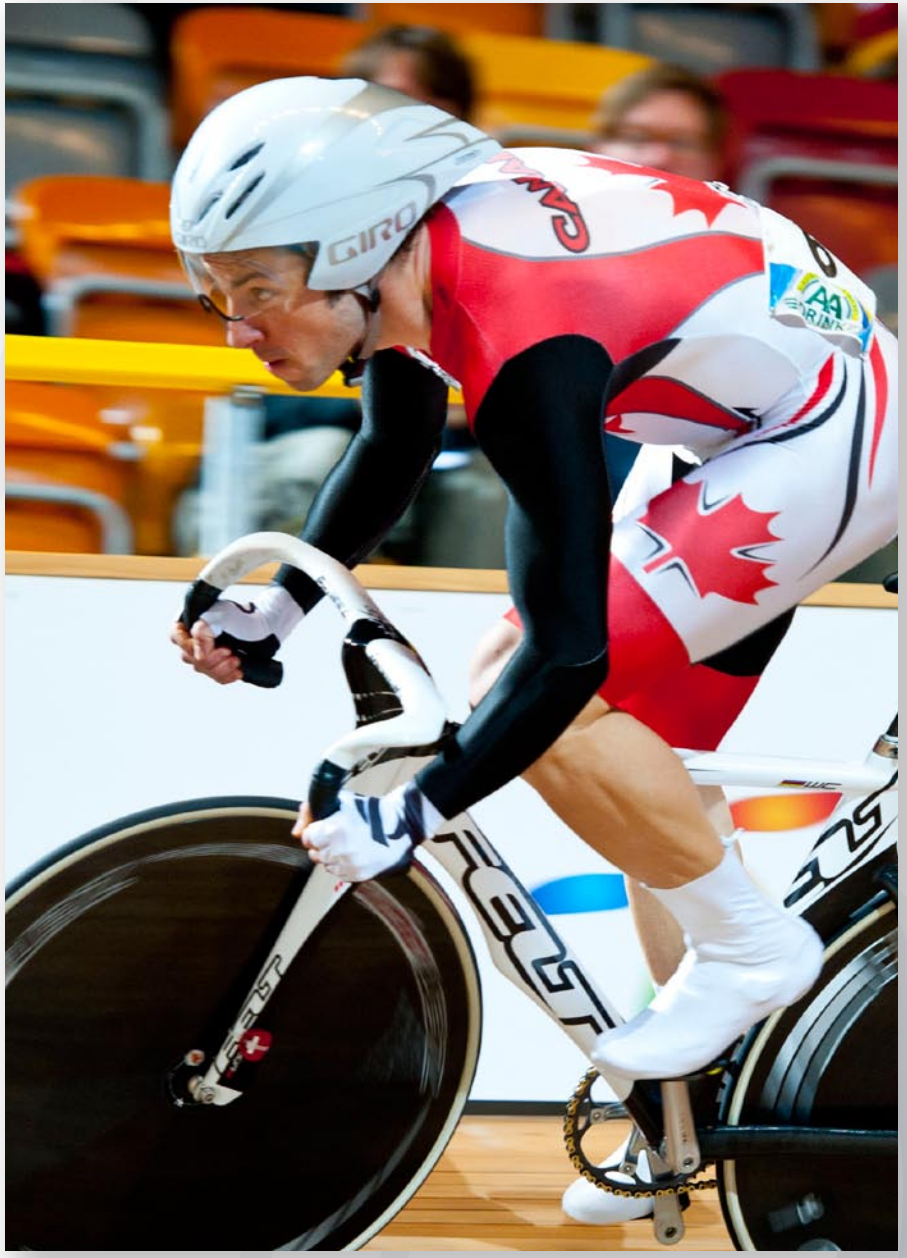
6 – The Role of Competition

"Competition is a good servant, but a poor master."

What do we mean by this?

Since athletes and coaches want to win, competition formats and schedules often determine the shape of athlete training programs. Winning is an obvious indicators of success, so it becomes easy to neglect harder-to-measure factors such as skill development and satisfaction. The highly competitive athlete- or coach, or parent- becomes focused on getting to and succeeding at a series of competitions, above all else. Unless sport leaders pay careful attention to matching the format of competition to the developmental needs of athletes, the quest for success may distort development, for example, by leading an athlete to lift weights to improve his/her start, when he/she has not yet developed all the necessary skills to ride the track. Competition has become the master.

If competition is to be a good servant rather than a poor master, the nature of Track competitions should reflect the goals for each developmental stage, including reinforcement of social, psychological and physical development objectives. In the early "Track for Development" stages, enjoyment of the sport and the development of good skills are most important goals. Later, in the "Track for Performance" stages the format of competitions should help the rider develop fitness, focus and competition abilities. Every competition should have a specific purpose tied to the athlete's stage, whether it is to develop tactical skills, to practice for a major competition, or to perform at a Championship event. Here are some tips:



- **In the "Track for Development" stages:**
  - Introduce competition only when the rider has developed sound basic track skills.
  - Choose competitions that use track profiles suitable for the rider's skill level.
  - Emphasize the rider demonstrating skills in competition, not winning. For example, "great position out of the start!" or "great pass on that banking!"
  - Use non-Olympic/Paralympic events such as madison, miss-and-out, handicap races, etc. to learn different skills (positioning, pacing, pack riding, contact, and team tactics).
  - Avoid comparing results to other riders. Compare to previous performances- look for improvement and consistency.
  - Avoid excessive, expensive travel to national competitions until the rider is ready (i.e. until the second half of the Train to Train stage).
- **In the "Track for Performance" stages:**
  - Select competitions based on specific criteria: development of skills and tactics, trying a higher level of competition for learning, or trying a different event for the first time.
  - At first (Learn to Compete) select only a few races per season where performance and ranking matter. Increase the emphasis on performance progressively.
  - Later (Train to Compete, Learn to Win) the emphasis is on refining race preparation and tactical skills, developed through participation in many national and some international events. This athlete may compete even more than a Train to Win athlete.
  - Constant monitoring to ensure there is enough time for recovery and training between competitions in the plan.

How to know when the rider is ready to move to the next stage of development and tougher competitions? Just because the rider is winning races, that does not put him or her in the "*Train to Win*" stage. Some stages have growth and development markers- for example, puberty marks the beginning of the time when the athlete can build strength and power, so the "*Track for Performance*" stages (*Learn to Compete to Train to Win*) cannot begin until then. An experienced, trained coach usually has the best perspective on when to take the next step.

PHOTO: FQSC

7 – The Stages of Track for Performance

The following table shows key Track Cycling developmental factors for the LTAD stages from Learn to Compete to Train to Win, and Active for Life. For more information on Cycling's LTAD refer to the *Cycling Canada LTAD Volume 1*. Stages are based on both chronological age and "sport years" which is the time the athlete spent developing in sport.

	LEARN TO COMPETE Age 12 - 15 4 - 7 years in sport	TRAIN TO COMPETE Age 15 - 17 6 -9 years in sport	LEARN TO WIN Age 17 - 21 7+ years in sport	TRAIN TO WIN Age 18+ 8+ years in sport	ACTIVE FOR LIFE any age after growth spurt
Defining the Stage	• "Optimizing the engine" • Major focus on implementing skills learned earlier in competition; learning through competition. • Continuing to refine and perfect technical skills. • Developing mental skills for competition.	• "Optimizing the engine" • Major focus on implementing skills learned earlier in competition; and refining competition tactics and abilities in a wide range of events. • Continuing to refine and perfect technical skills. • Developing mental skills for competition.	• "Maximizing the engine" Major focus is developing speed and power. • Learning to perform "on demand" in high-pressure competition situations. • Refining and perfecting skills and tactical skills. • Refining mental skills for competition; learning to maintain performance while balancing life skills in high performance competition.	• "Performance on demand" – ability to perform at top level despite setbacks • Perfecting all physical abilities and recovery/regeneration. • Able to perform "on demand" in high-pressure situations. • Refining and perfecting skills and tactical skills. • Refining mental skills for competition; maintain performance while balancing life skills in high performance competition.	• "Maintain activity, give back" • Enjoy and appreciate the sport of cycling • Emphasis on maintaining fitness through year-round activity. • Participation in multiple sports including cycling. • Look for leadership opportunities e.g. coaching, officiating

	LEARN TO COMPETE Age 12 - 15 4 - 7 years in sport	TRAIN TO COMPETE Age 15 - 17 6 -9 years in sport	LEARN TO WIN Age 17 - 21 7+ years in sport	TRAIN TO WIN Age 18+ 8+ years in sport	ACTIVE FOR LIFE any age after growth spurt
Participant Profile	• Is interested in pursuing excellence. • Is prepared to train hard and focus on competitive success. • Self-image becomes defined, includes sport as a major element in identity. • Growth spurt and onset of puberty in this stage-implications for growth, level of fatigue, coordination, • Needs support network including family, coach to maintain focus on sport career.	• Is serious about sport and pursuing excellence. • Is prepared to train hard and focus on competitive success. • Is likely experiencing life challenges in balancing school, family, personal relationships and work, which may detract from commitment to sport. • Self-image includes sport as a major element in identity. • Looking ahead to next steps in sport success e.g. college, National Team but may be frustrated by injury or other priorities. • Needs a support network including family, coach, sport science and health care to sustain sport career.	• Fully committed to Track and pursuing excellence. • Training hard and focus on competitive success is a "full time job". • Learning to cope with life challenges in balancing school, family, personal relationships and work, which may detract from commitment to sport. • Self-image includes sport as a major element in identity. • Completely focused on next steps in sport success e.g. National Team, Worlds, Olympics. • Building a support network including family, coach, sport science and health care to sustain sport career.	• At the top – a role model. • Fully committed to Track and excellence. Working to stay on top of the Track world. • Training hard and focus on competitive success is a "full time job". • Copes with life challenges in balancing school, family, personal relationships and work. • Self-image includes sport as a major element in identity. • Completely focused on next steps in sport success e.g. National Team, Worlds, Olympics. • Has built a support network including family, coach, sport science and health care to sustain sport career.	• Confident about sport participation. • Enjoys cycling. • Participant may be any age after adolescence (basic physical literacy is developed). • Sport participation is important to physical and emotional well-being and is a part of social life.
Track specific Objectives & Support	• More advanced tactical skills as well as mental/decision making skills are added. The main focus is tactical development. • Increasing emphasis on race results (placings) and working toward consistent results. • Continue to use elements such as times, race positioning, good use of skills and tactics to help analyze race results. • Continue to develop higher pedal rates e.g. 140+ rpm.	• More advanced tactical skills as well as mental/decision making skills are refined through competition. • Increasing emphasis on race results (placings) and working toward consistent results. • Continue to use elements such as times, race positioning, good use of skills and tactics to help analyze race results. • Continue to develop higher pedal rates e.g. 140+ rpm.	• Advanced tactical skills as well as mental/decision making skills are refined through competition. • Working toward "performance on demand"- emphasis on consistent race results. • Use elements such as section times, race positioning, video to help analyze race results. • Maintain high pedal rates e.g. 140+ rpm.	• Advanced tactical skills as well as mental/decision making skills are refined through competition. • Working toward "performance on demand"- emphasis on consistent race results. • Use elements such as section times, race positioning, video to help analyze race results. • Maintain high pedal rates e.g. 140+ rpm.	• Access to equipment and facilities • Access to coach if desired • Access to appropriate sport programs

PHOTO: FQSC

	LEARN TO COMPETE Age 12 - 15 4 - 7 years in sport	TRAIN TO COMPETE Age 15 - 17 6 -9 years in sport	LEARN TO WIN Age 17 - 21 7+ years in sport	TRAIN TO WIN Age 18+ 8+ years in sport	ACTIVE FOR LIFE any age after growth spurt
Physical Development	• Advanced sport specific drills • Speed, power: specific sprint training. • Strength: Athlete specific core strength and stability, ankle and knee stability, free weights. Sport specific strength in specific preparation phase • Warm up/cool down- integral, specific to training and competition • Anaerobic power: specific prep and competition phases, targeted development • Aerobic power: Specific training and complementary sports.	• Advanced sport specific drills • Speed, power: specific sprint training. • Strength: Athlete specific core strength and stability, ankle and knee stability, free weights. Sport specific strength in specific preparation phase • Warm up/cool down- integral, specific to training and competition • Anaerobic power: specific prep and competition phases, targeted development • Aerobic power: Specific training and complementary sports.	• Major power development window. • Speed, power: specific sprint training. • Strength: Athlete specific core strength and stability, ankle and knee stability, free weights. Sport specific strength in specific prep phase • Warm up/cool down- integral, specific to training and competition • Anaerobic power: specific prep and competition phases, targeted development • Aerobic power: Specific training and complementary sports.	• Primary focus is on adequate recovery/regeneration from intensive training and competition. • Major power development focus. • Strength: Maintain athlete specific core strength and stability, ankle and knee stability, free weights. Sport specific strength in specific preparation phase • Anaerobic power: specific prep and competition phases, targeted development • Aerobic power: Specific training and complementary sports.	• Speed, power and endurance through FUN and games • Strength: Build core strength and stability- use own body weight or weights as desired • Aerobic power: Mix of development through fun and games, and specific development. • Participation in multiple sports and activities
Technical Development	• Perfecting all Track skills. • Refine skills in team races (team sprint, team pursuit) including starting, efficient exchanges, drafting. • Master start skills (first 10 pedal strokes). • Leg speed 140-150. • Maintains own equipment.	• Perfecting all Track skills. • Refine skills in team races (team sprint, team pursuit) including starting, efficient exchanges, drafting. • Master start skills (first 10 pedal strokes). • Leg speed 140-150. • Maintains own equipment.	• Perfecting all Track skills. • Innovating skills and tactics. • Continue developing leg speed up to 170 rpm.	• Perfecting all Track skills. • Innovating skills and tactics. • Continue developing leg speed up to 170 rpm.	• Develop and maintain good cycling position and pedaling technique, cycling skills • Focus on motivating and FUN activities
Tactical Development	• Advanced tactics, execution of a race plan. • Proficient in drafting, pacing, sprinting in racing. Execute race strategies. Appropriate positioning on track in all race situations. Appropriate gear selections for track, event.	• Advanced tactics, perfecting race plan. • Proficient in drafting, pacing, sprinting in racing. Execute race strategies. Appropriate positioning on track in all race situations. Appropriate gear selections for track, event.	• Advanced tactics, execution of a race plan & multi-round strategy. • Advanced knowledge of competitors	• Advanced tactics, execution of a race plan & multi-round strategy. • Advanced knowledge of competitors • Innovating tactics	• Tactics appropriate to level of racing (if desired)

	LEARN TO COMPETE Age 12 - 15 4 - 7 years in sport	TRAIN TO COMPETE Age 15 - 17 6 -9 years in sport	LEARN TO WIN Age 17 - 21 7+ years in sport	TRAIN TO WIN Age 18+ 8+ years in sport	ACTIVE FOR LIFE any age after growth spurt
Mental Skill Development	• Focus on decision-making in races and understanding consequences • Development of competition routines pre-race, post-race	• Race focus, decision-making • Refining competition routines pre-race, post-race • Life skills, team relations, managing distraction	• Race focus, decision-making • Perfect competition routines pre-race, post-race • Life skills, team relations, managing distraction, coping with adversity, time management	• Race focus, decision-making • Perfect competition routines pre-race, post-race • Life skills, team relations, coping with adversity, time management	• Mental skill development appropriate to level of racing (if desired)
Training Program	• 300-600 hours per year (all cycling- not track specific). • 4 to 6 sessions per week; 7 to 10 hrs/week. • Sessions to 90 min- 3:00 hrs • Should participate in up to 1-2 other sports and cycling sports (e.g. road) • Double periodization- periods of Track focus and 1 main track competition alternating with periods of road focus.	• 400-750 hours per year (all cycling- not track specific). • 5 to 8 sessions per week; 9 to 16 hrs/week. • Sessions up to 2.00- 3:00 hrs • May participate in up to 1-2 other sports, and is now beginning specializing in Track • Double periodization- periods of Track focus and 1 main track competition alternating with periods of road focus.	• 500-1000 hours per year (all cycling- not track specific). • 6 to 10 sessions per week; 10 to 20 hrs/week. • Sessions up to 2.00- 3:00 hrs • May participate in up to 1 other sport but is now specialized in Track • Longer, consolidated periods of Track focus alternating with periods of road focus. • Multiple periodization- multiple peaks.	• 600-1000 hours per year (all cycling- not track specific). • 6 to 10 sessions per week; 10 to 20 hrs/week. • Sessions up to 2.00- 3:00 hrs • May participate in up to 1 other sport but is now specialized in Track • Longer, consolidated periods of Track focus alternating with periods of road focus. • Multiple periodization- multiple peaks.	• Daily physical activity • Training appropriate to level of competition desired, if any • Participation in multiple sport activities
Competition Framework	• Train and compete in provincial program and provincial/national selection camps. • Major focus is National Championships. • First exposure to international competition.	• National and initial International races • National Championships • National Development Camps • Provincial Team	• International races and initial World Cup races • National Championships • National races • National Team Camps	• International races: World Cup, World Championships, Major Games • National Championships • National races • National Team Camps	• Competition if desired and appropriate to athlete

	LEARN TO COMPETE Age 12 - 15 4 - 7 years in sport	TRAIN TO COMPETE Age 15 - 17 6 -9 years in sport	LEARN TO WIN Age 17 - 21 7+ years in sport	TRAIN TO WIN Age 18+ 8+ years in sport	ACTIVE FOR LIFE any age after growth spurt
Parents help by…	• These are the "support" years. The athlete is beginning to specialize by reducing the number of other sports- 1 or 2 at most. • Parents help by assisting the athlete to get to practice and competitions, ensuring equipment is appropriate quality, and supporting the coaches' decisions. • Don't add pressure by emphasizing winning and performance; instead, remove pressure by letting him/her make their own decisions and supporting them by ensuring they have looked at all options and opportunities.	• These are the "support" years. The athlete is beginning to specialize by reducing the number of other sports- 1 or 2 at most. • Parents help by assisting the athlete to get to practice and competitions, ensuring equipment is appropriate quality, and supporting the coaches' decisions. • Don't add pressure by emphasizing winning and performance; instead, remove pressure by letting him/her make their own decisions and supporting them by ensuring they have looked at all options and opportunities.	• These are the "investment" years. The athlete is mature, capable of making their own decisions and has specialized in Track Cycling. Parents help by providing financial assistance and being there to offer extra support as needed.	• These are the "investment" years. The athlete is mature, capable of making their own decisions and has specialized in Track Cycling. Parents help by providing financial assistance and being there to offer extra support as needed.	• Supporting all kinds of sport activity and interests, including learning to coach or officiate. • Supporting non-competitive sport interests.
Coaching	• Track coach certified in NCCP Competition Development • Personal coach and may be working with Provincial Team Coaches	• Track coach certified in NCCP Competition Development • Personal coach and may be working with Provincial and National Team Coaches	• Track coach certified in NCCP High Performance • Personal coach and may be working with Provincial and National Team Coaches	• Track coach certified in NCCP High Performance • Personal coach and may be working with National Team Coaches	• Coach if appropriate and desired Community Cycling Ongoing – trained
Performance Testing	• By end of stage, testing by recommended • Video skill analysis • Power-Wingate test (at end of stage) • Functional movement screen	• Regular testing by coach (quarterly) • Power-Wingate test • Video skill analysis • Functional movement screen	• Regular testing by coach (monthly-quarterly) • Power-Wingate test • Aerobic power • Video skill analysis • Functional movement screen	• Regular testing by coach (monthly-quarterly) • Power-Wingate test • Aerobic power • Video skill analysis • Functional movement screen	• None in this stage.

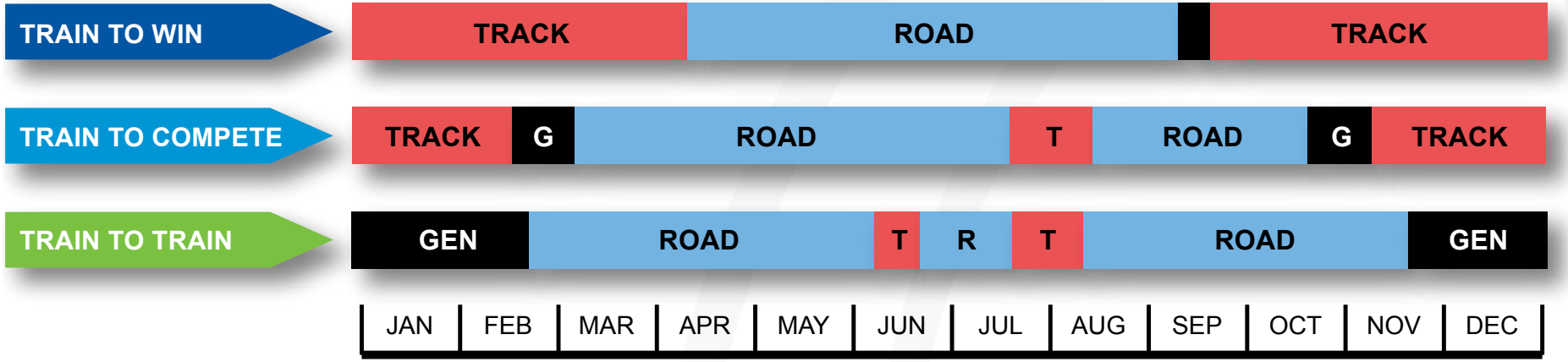
Periodization in the Track for Performance Stages

A stage-appropriate, periodized training and competition plan is a key factor in successful Long-Term Athlete Development. Coaches and sport scientists have learned much about how periods of training and competition alternating with recovery can be varied to optimize performance. The volume, intensity and patterns of work and recovery must all be tailored to the development stage of the athlete.

Cyclists typically integrate track into their overall cycling training and competition program. In the Learn to Train and Train to Train stages, cyclists may be taking part in road, mountain bike or BMX as well as starting to ride track. Even in Train to Compete and Train to Win stages when athletes are specializing, track is typically only part of the calendar. There is typically an alternation of focus on road and track training and competition. Road-based training is effective for track endurance cyclists, and limited access to track time and need for variety makes road training essential.

The Train to Win athlete has much longer periods of track specialization, but even in these periods there is a significant amount of road-based training and often some road competitions. By comparison the Train to Train athlete has very short periods of track specialization and more off-bike general preparation in the winter months.

The graphs on page 21 show examples of volume (in hours of training and competition per week) and periods of track vs. road specialization for athletes in three stages: Train to Train, Train to Compete and Train to Win. The main track competition and two secondary competitions are also shown as red dots. These graphs are based on male track athletes primarily competing in endurance-based track events.



Note the differences between the stages:

– The Train to Train athlete has a focus on developing technical and tactical skills, while training to "build the engine". As in the previous Learn to Train stage, it is desirable to participate in multiple sports (e.g. cycling, cross-country skiing, soccer) and multiple cycling disciplines (e.g. MTB, road and track). Success in competition is a secondary goal, with the most important competitions at provincial-level events. This athlete has a general preparation phase in the winter months which provides an opportunity for other sports, and several brief periods of track training and development in the summer totaling about 15% of the program. A Track for Life athlete might have a similar pattern.

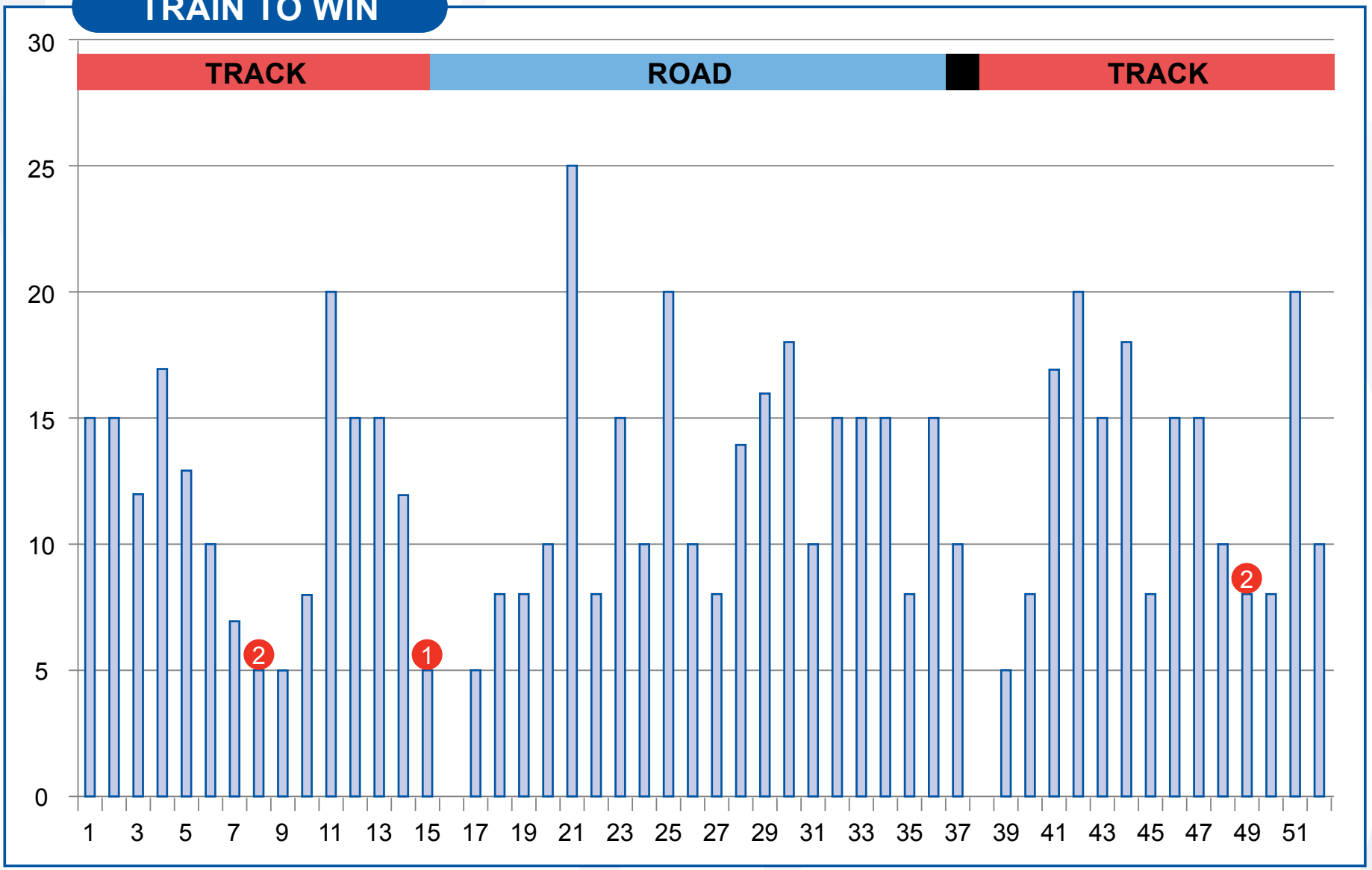
  A Train to Train athlete with access to an indoor velodrome (e.g. London ON, Burnaby BC) would likely have a different periodization with an extended track focus in the winter months. The overall training volume would remain similar and the emphasis would remain on skills, not competition.

– The Train to Compete athlete has a focus on maintaining a high level of performance while learning and refining high performance racing skills and tactics. He or she is more specialized in cycling, and within cycling, more specialized in a few disciplines- in this case, road and track. More frequent competition, and entry into international competition, is a priority. As a result the profile of weekly volume is relatively "spiky" with frequent travel and competition alternating with cycles of recovery and training. The most important competitions are national and international level events. Note that this athlete is spending about 35% of time on specific track training and competition, with longer periods of track specialization during the year. The winter and spring months have a major track focus.

– The Train to Win athlete is highly specialized, spending about 55% of the year with a track focus. The periods of track and road focus are consolidated, reflecting the specialization in this stage. Success in international competition is the main goal, and this athlete is participating in World Cup and World Championship-level track competition, primarily in the winter and spring. Regular cycles of travel, competition, and recovery alternate with training cycles, making the profile even more "spiky". This athlete is training and competing nearly year-round, with recovery taking place within cycles. There is a very short transition phase between annual plans.

Integrating track cycling in the earlier stages is essential for skill development, and whether or not the athlete continues in track racing, the skills developed are useful in all forms of cycling. For the track-focused athlete, a progressive specialization in the Train to Compete period brings an increase in track training and competition. Finally in the Train to Win stage the rider is fully specialized and is perfecting track competition techniques. In all stages, road training and competition is a key part of the program.

TRAIN TO WIN


TRACK
ROAD
TRACK
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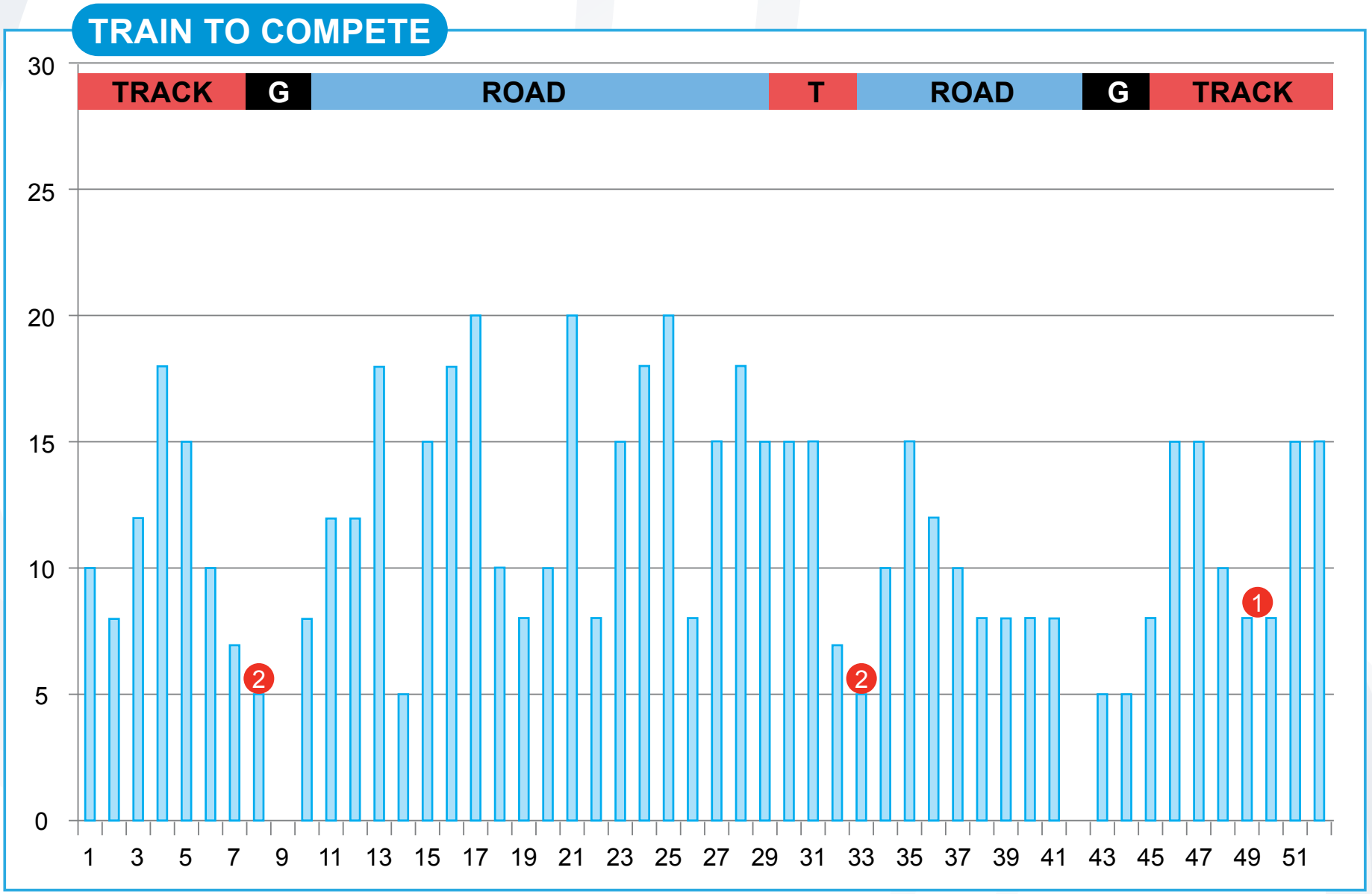
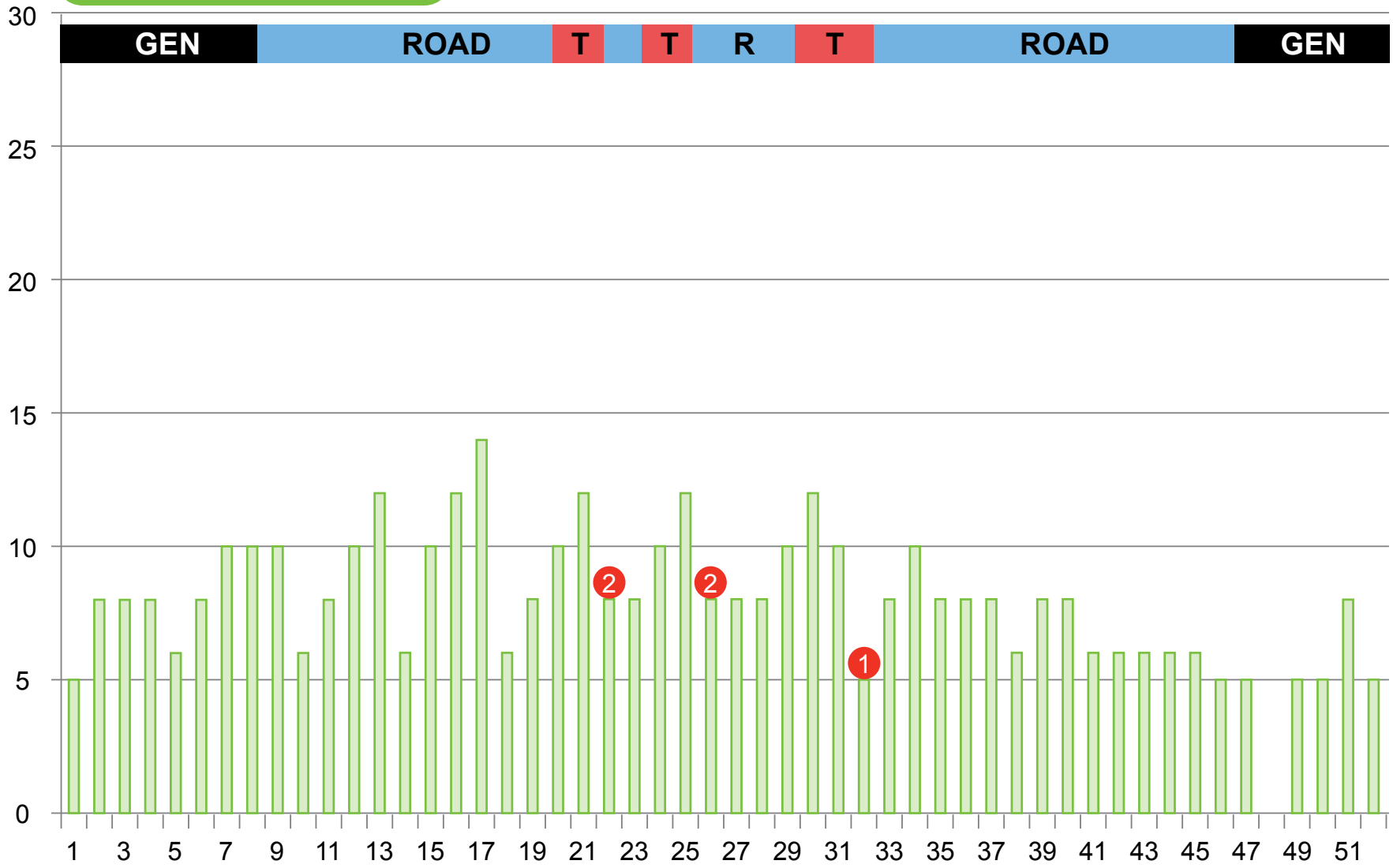
TRAIN TO COMPETE



TRAIN TO TRAIN



8 – Building Canadian Track Cycling

Currently the majority of cyclists cross over to track from other cycling sports, some around ages 14 to 16, others in their 20's, and some older still. In this guide cyclists under 18 starting out on the track are considered part of "Track for Development". They may progress directly to Track for Performance, or continue to ride Track occasionally as they work toward specialization in other cycling sports. This section on Track for Life is specific to athletes who begin Track later, in their 20's or older.

Late-entry or Track for Life represents a new opportunity for many cyclists. They may feel they have progressed as far as they can in other forms of cycling, or they may simply want to try something new and exciting. There are many examples of Canadian cyclists who transferred over to track after successful careers in other forms of cycling: Tanya Dubnicoff was a BMX champion before starting track at age 18; she represented Canada at 3 Olympics and won the World Championship in Sprint in 1993. In general these "crossover" racers bring fitness and an understanding of training and racing, but require accelerated development in track skills and race tactics. Initial, intensive participation in track skill development "clinics" and coaching for skills prior to entry in track competition is recommended.

The approach to competition for Track for Life racers depends on the athlete and on the event. Endurance events, especially individual events such as Pursuit, are relatively "safe" for a relative novice while Sprint events, especially multi-rider tactical events (e.g. Individual and Team Sprint) require greater skills. The athlete's initial skill level and attitude are important considerations in deciding when to begin competition. Simulated competitions in training situations, and watching and analyzing races, are an important bridge to competition.

Choice of events depends on the athlete's interest and background, but for skill development purposes the athlete should be encouraged to try all types of track events, at least as simulations in training. Crossover athletes may have a strong aptitude and inclination for either sprint or endurance racing based on their background – see the example of Tanya Dubnicoff above – or they may simply be interested in "sampling" different kinds of events.

9 – Building Canadian Track

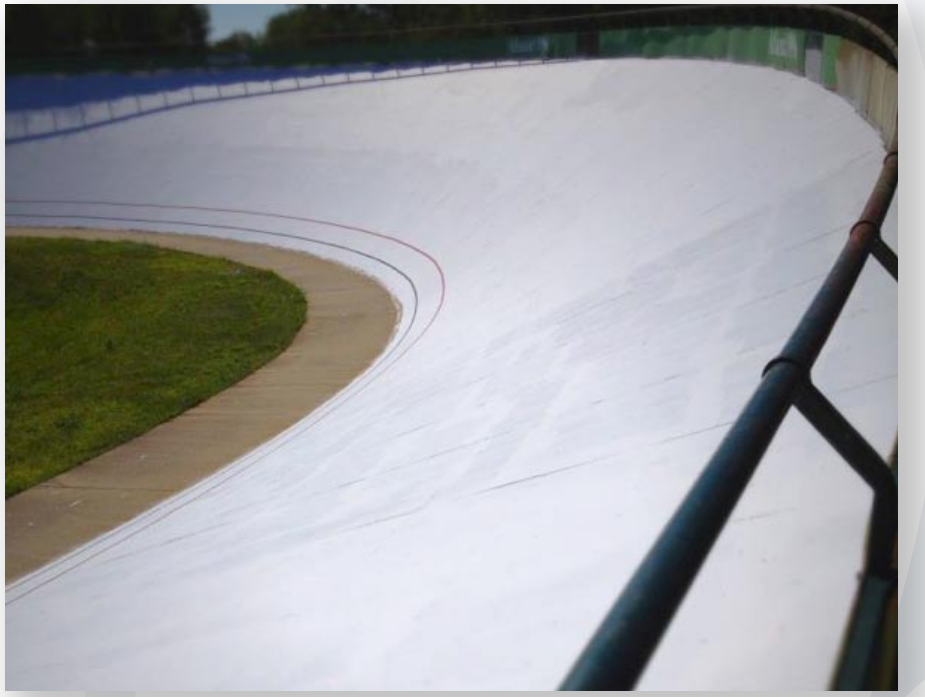
Although track has been part of Canadian cycling for many years, it has relatively small participation compared to other cycling sports. Different provinces and territories have different availability of tracks and coaches, different levels of organization, and (of course) different climates and proximities to track racing in the USA. To create more opportunities for our racers we need to work together to build Canadian track. Cycling Canada, its partner provincial/territorial sport organizations (P/TSOs), coaches, organizers and parents all have key roles:

OBJECTIVE	RESPONSIBILITY
Develop a national framework for Track development based on Canadian Sport for Life/Long Term Athlete Development	CC
Develop and deliver coach and officials training programs	CC, P/TSOs
Work to support the building and development of more quality tracks and clubs	CC, P/TSOs, Clubs
Create stage-appropriate development programs and competition schedules that support rider development.	CC, P/TSOs, Clubs,TC
Commit to ongoing personal and professional development, including NCCP certification, to provide the best quality of stage-appropriate development for athletes.	Coaches
Maintain a healthy perspective on competition and winning, remembering that we are working to build individual growth and development, long-term gains and success, and a love for all kinds of sport and physical activity.	Coaches, Parents
Ensure young racers get the best quality development by understanding Canadian Sport for Life principles and insisting on a NCCP-certified Track coach.	Parents
Understand the importance of building skills in the "Track for Development" stages, and prioritize skill development ahead of winning for young racers.	All

BUILDING TRACK
Means Building Tracks- Or Finding Alternatives

The development of track racing depends on the availability of tracks, or velodromes. As velodromes are expensive to build and maintain, it is essential to use alternatives. Flat-track racing, either on grass or dirt (sometimes called "cycle speedway") presents an opportunity to develop track cycling skills and tactics in nearly any community. Most of the developmental benefits and many of the technical and tactical skills can be had through racing on flat tracks.

Although alternative track racing is better than none at all, we must also make a concerted effort to preserve our existing velodromes and build new ones. Success in the past years in Burnaby BC and London ON is being followed with construction of a new track in Milton ON for the 2015 Pan Am Games. This will be a stepping-stone toward much greater Track participation in Canada- if we work together!



10 – From Winning Track to Winning for Life

Providing the latest information on development, training and competition, like this guide, is part of Cycling Canada's commitment to growing the sport of track cycling in Canada. Our goal is not simply to help Canadian athletes onto international podiums, but to ensure that every athlete can enjoy participation in cycling and sport for a lifetime.

Our framework for growth is the Canadian Sport for Life movement. A key part of the movement is Long-Term Athlete Development, which is a comprehensive set of principles for effective participant development. LTAD is based on research combined with the practical experience of working with thousands of athletes and coach-instructors.

We believe:

- Life has different stages of development that include transitions from child to adolescent, to adult, and then to senior, resulting in changed capabilities.
- Training, competition and recovery programs should be based on participant capability rather than chronological age.
- For optimal development, sport and physical activity programs must be designed for the capability and gender of the participant.
- Physical literacy is the basis of life-long participation and excellence in sport and engagement in health enhancing physical activity.
- Every child has the potential to be an athlete; therefore, is genetically predisposed to be active if the environment encourages participation.
- Life-long participation and excellence in sport are best achieved by participating in a variety of sports at a young age to develop athleticism, then specializing in a particular sport later.
- There are sensitive periods during which there is accelerated adaptation to training during pre-puberty, puberty and early post-puberty.
- A variety of developmental, physical, mental, cognitive and emotional factors affect the planning of optimal training, competition and recovery programs.
- Providing guidance through the developmental stages of sport and physical activity will result in increased participation and performance across the lifespan.
- Mastery in sport develops over time, through participation in quality sport and physical activity programs.
- LTAD is participant/athlete centered, coach-led and organization-supported and, therefore, takes into account the demands of home, organized sport, community recreation and school.
- Quality sport and physical activity, combined with proper lifestyle, result in better health, disease prevention, enhanced learning, enjoyment and social interaction; leading to improved wellness.
- Sport practices, scientific knowledge and societal expectations are ever changing and, therefore, LTAD needs to continually adapt and improve.

We encourage you to support every athlete by following these principles, whether their time in track leads them to the podium, to other cycling disciplines, to other sports, or to contributing to sport in other ways.

Let's go!

Glossary of Terms

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

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

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

Anthropometry: Measurement of body lengths and girths. In early stages height and weight should be measured regularly to help in determining Peak Height Velocity (growth spurt). Later, body fat measurement should be added.

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

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

Chronological age refers to "the number of years and days elapsed since birth." Growth, development, and maturation operate in a time framework; that is, the child's chronological age. Children of the same chronological age can differ by several years in their level of biological maturation. The integrated nature of growth and maturation is achieved by the interaction of genes, hormones, nutrients, and the physical and psychosocial environments in which the individual lives. This complex interaction regulates the child's growth, neuromuscular maturation, sexual maturation, and general physical metamorphosis during the first 2 decades of life.

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

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

Community Initiation: A National Coaching Certification Program context describing coaches of entry-level pre-competitive athletes.

Development refers to "the interrelationship between growth and maturation in relation to the passage of time. The concept of development also includes the social, emotional, intellectual, and motor realms of the child."

The terms "**growth**" and "**maturation**" are often used together and sometimes synonymously. However, each refers to specific biological activities. Growth refers to "observable, step-by-step, measurable changes in body size such as height, weight, and percentage of body fat." Maturation refers to "qualitative system changes, both structural and functional in nature, in the organism's progress toward maturity; for example, the change of cartilage to bone in the skeleton."

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

Functional Movement Screen- A test of core strength and balance while performing simple 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.

Introduction to Competition: A National Coaching Certification Program context describing coaches of early-stage competitive athletes.

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

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

Movement Literacy: The competence of an athlete in a wide range of physical activities; a foundation for all sport development.

National Coaching Certification Program (NCCP)- Canada's coach education program which prepares coaches in Community, Introduction to Competition, Competition Development and Competition High Performance contexts.

Periodization: A training program broken down into phases (periods) to promote progressive development.

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

Physical literacy refers to the mastering of fundamental motor skills and fundamental sport skills.

Puberty refers to the point at which an individual is sexually mature and able to reproduce.

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

Skeletal age refers to the maturity of the skeleton determined by the degree of ossification of the bone structure. It is a measure of age that takes into consideration how far given bones have progressed toward maturity, not in size, but with respect to shape and position to one another.

Skill- The ability to perform complex movements with a high degree of precision and consistency. This includes both movement skills (agility, motion and object-control) and sport skills (reading and reacting to sport situations).

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 growth.

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

Stamina- Also called "aerobic endurance" this is the ability to continue intense exercise for long periods.

Suppleness- Also called "Flexibility" this is the range of physical movement at the joints.

Talent ID: Talent identification tests used to direct athletes into activities based on their potential. Talent ID must NOT be used to compare athletes (e.g. for selection).

Trainability refers to the genetic endowment of athletes as they respond individually to specific stimuli and adapt to it accordingly. Malina and Bouchard (1991) defined trainability as "the responsiveness of developing individuals at different stages of growth and maturation to the training stimulus."

Wingate Test- A test of anaerobic power and capacity.

Resources and Contacts

In addition to the resources and contacts listed here, useful information can be found at *www.cyclingcanada.ca/development-programs/cycling-ltads/*

Resources

Canadian Cycling Association Long-Term Athlete Development, Volume 1. 2008. Canadian Cycling Association, Ottawa, ON. ISBN 978-0-9809082-0-6

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

Additonal information on Canadian Sport for Life and Long-Term Athlete Development can be found at www.canadiansportforlife.ca

Provincial Cycling Associations

Cycling British Columbia
#201-210 West Broadway
Vancouver, BC V5Y 3W2
Direct: 604 737-3164
www.cyclingbc.net

Alberta Bicycle Association
Percy Page Centre,
11759 Groat Road,
Edmonton, AB T5M 3K6
780 427-6352 (B)
www.albertabicycle.ab.ca

Saskatchewan Cycling Association
2205 Victoria Avenue,
Regina, Saskatchewan S4P 0S4
306 780-9299 (B)
www.saskcycling.ca

Manitoba Cycling Association
200 Main Street, Suite 309,
Winnipeg, Manitoba R3C 4M2
204 925-5686 (B)
www.cycling.mb.ca

Ontario Cycling Association
307-3 Concord Gate
Toronto, Ontario M3C 3N7
416 426-7243 (B)
www.ontariocycling.org

Fédération Québécoise des sports cyclistes
4545 Pierre de Coubertin
Montréal, Québec H1V 3R2
514 252-3071 (B)
www.fqsc.net

Vélo New Brunswick
P.O. Box 3145
Fredericton, New Brunswick E3A 5G9
506 877-7809 (B)
www.velo.nb.ca

Atlantic Cycling Center,
200 Prom. Du Parc,
Dieppe, NB E1A 7Z3
Contact: Luc Arseneau

Bicycle Nova Scotia
5516 Spring Garden Rd, 4th Floor,
Halifax, Nova Scotia B3J 1G6
902 425-5454 x 316 (B)
www.bicycle.ns.ca

Bicycle Newfoundland and Labrador
P.O. Box 2127, Station C,
St. John's, Newfoundland A1B 4R3
709 738-8889 (B)
www.bnl.nf.ca

Cycling Association of Yukon
9B Diamond Way,
Whitehorse, Yukon Y1A 6G4
867 667-8212 (B)

Cycling PEI
P.O. Box 302
Charlottetown, PEI C1A 7K7
1800 247-6712
www.sportpei.pe.ca

Canada's Velodromes

Bromont, QC – outdoor, 250 m
Centre national de cyclisme de Bromont
400 rue Shefford,
Bromont, QC J2L 3E7
(450) 534-3333
www.centrenationalbromont.ca

Burnaby, BC – indoor, 200 m
Burnaby Velodrome Club
Harry Jerome Sports Centre
7564 Barnet Highway
Burnaby, BC V5A 1E7
www.burnabyvelodrome.ca

Calgary, AB – outdoor, 400 m
Glenmore Velodrome,
Calgary Bicycle Track League
Glenmore Athletic Park
5300, 19 Street SW, Calgary, AB
www.cbtl.com

Dieppe, NB – outdoor, 250 m
Caisse populaire Dieppe Velodrome,
National Cycling Centre Atlantic Canada
2200 prom du parc Dr.
Dieppe, NB E1A 7Z3
(506) 877-7809
www.atlanticcyclingcentre.com

Edmonton, AB – outdoor, 333 m
Argyll Velodrome Association
6850 88 Street
Edmonton, AB T6E 5H6
(780) 490 5979
www.argyllvelodrome.co

London, ON – indoor, 138 m
Forest City Velodrome
4380 Wellington Rd S
London, ON N6E 2Z6
(519) 649-6142
www.forestcityvelodrome.ca

Milton, ON (opening 2015) **– indoor, 250 m**

CyclingCANADACyclisme

203 - 2197 Riverside Drive
Ottawa, Ontario K1H 7X3

Tel: (613) 248-1353
Fax: (613) 248-9311

www.cyclingcanada.ca