

Revised Canadian Competition Model for Able Body

May 2010

The following update of the Canadian competition model is the result of an extensive piloting process over the 2009/10 ski season (first year of implementation), complemented by significant feedback sought from coaches, athletes and officials.

The goal of the current revision process is to align our competition model with the LTAD guidelines per development stages, from Active Start to Training To Win, while providing the necessary flexibility in the application of the new Competition Model to account for varying regional competition contexts.

The Competition Model remains a model, i.e. it reflects the optimal development of an athlete from the Active Start stage to the Training to Win stage. Therefore the guidelines per stages of development are appropriate for athletes of the corresponding average age ranges as long as those athletes' states of development (or developmental age) indeed correspond to the stage of development associated with the age range. For example, a majority of senior athletes (20 and older) do not belong to the T2C or T2W stages because despite their age, they simply have not reached those levels of development. This obviously needs to be taken into consideration by athletes, coaches and parents in determining the appropriate level of racing for the athletes. Although athletes usually don't have the option of "racing down" in appreciation of those considerations, there exists many ways to adapt the racing program to an athlete's needs such as choosing races of appropriate race distances and choosing appropriate levels of racing (regional, divisional, national, etc).

LTAD alignment means to avoid doing things we shouldn't be doing from a developmental perspective for specific LTAD stages (like having Atoms and Pee-Wees racing on courses with long steep up hills and down hills) but it also means to prescribe race distances and race formats that will allow skiers to take advantage of the Optimal Windows of Trainability (refer to CCC's LTAD guide) for the different development factors throughout LTAD stages, when applicable. In other words, racing is not just an end in itself but also one of skiers' most important **development** tools.

The core notion of the LTAD concept is that we do not treat younger and growing athletes as mini-adults but rather that we recognize the very specific needs of growing skiers from infancy to adulthood, needs that are also gender specific. It is therefore crucial that athletes, coaches and parents acquaint themselves with the various developmental benchmarks to look for to properly monitor an athlete's growth and development and consequently determine when an athlete is transitioning from one stage to the next one. CCC's HP development and CAD staff will be at the core of the ongoing education efforts in that regard. Several tools are also currently available to help coaches' provide adequate guidance to parents and athletes:

- ✓ LTAD poster/brochure (for parents/coaches of entry level competitors - FUNdamentals and L2T) - available to anyone in hardcopy and on the CCC website (<http://www.cccski.com/dbfiles/855.pdf>)
- ✓ CCC's Athlete Development Grids - up to the T2T level, available in the new-system NCCP manuals;
- ✓ NCCP module on maturation (for parents/coaches of L2T, T2T athletes and up);
- ✓ CCC's Athlete Development Benchmarks (all levels);
- ✓ LTAD Growth and Maturation poster (for parents/coaches of L2T and T2T athletes)

Despite the potential changes incurred to racing categories by their alignment with the new competition model, athletes, coaches and parents should not disregard the importance of choosing the appropriate **level** of events for an athlete as one way to best adapt the competition environment to an athlete's needs and stage of development.

CANADIAN COMPETITION MODEL

Nb: The following notes are meant to facilitate the interpretation of the detailed parameters per stage of development contained in the tables of the next section.

AVERAGE AGE RANGE CORRESPONDING TO STAGE OF DEVELOPMENT

1. The “Average age range” column of the charts below represents the athlete’s chronological age as of December 31st of the competition season. For example, an athlete who was born in 1995 would be categorized as being 15 years of age in the 2011 competition season.
2. Racing categories for NORAM events and National championships will be determined by CCC in respect with the Competition Model guidelines per stage of development and other considerations such as the expected sizes of fields, race formats, venues’ capacities and race objectives of the competition (ie. Team or Trip Selection). Racing categories for all other levels of domestic events (divisional and regional) should be determined by divisional governing bodies and events organizing committees in consideration of the same parameters as for NORAM and Nationals events. Take note that awards and other types of recognition should be considered distinctively of the age groups used for racing purposes.
3. In the “Average age range” column, ages that are set off by brackets (e.g. (15)) indicate that athletes of this age are at the lower end of the age range for a given stage of development and may still belong to the preceding stage of development, in accordance with the athlete’s developmental age. **Athletes of those YOB that decide to race with the more advanced stage of development are considered as “racing up” (as for any regular cases of “racing up”) and thus should be considered as athletes of the first non-bracketed YOB in the stage of development (and likely race category) for awards, race starts, etc.** Determining an athlete’s LTAD stage, and thus his/her appropriate race category, is best left to the discretion of the athlete’s coach, with input from parents and other persons involved in the athlete’s development. CCC strongly encourages coaches and parents to keep records of long term growth data and to refer to CCC’s published LTAD benchmarks per stage as tools to determine the LTAD stages and proper race categories of individual athletes.
4. For most athletes the progression from one stage of development to another is gradual. There may also be circumstances when it becomes justified or not for an athlete to “race up” (level of the event, race distances and course profiles, etc). Therefore the decision of racing up or not will be left to the discretion of the athlete’s coach, with input from parents and other persons involved in the athlete’s development.
5. The rate of growth difference between males and females is introduced into the competition model progressively between the L2T and L2C stages. Female athletes should normally reach the L2C stage one to two years earlier than male athletes, on average. However, the upper age limit of the L2C category is prescribed by international rules; therefore it is not possible to consider either 20 year old men as juniors or

19 year old women as seniors. Domestically, junior and senior athletes of respectively L2C and T2C/T2W stages still have multiple opportunities to race on common distances that are appropriate for both stages of development.

OPTION OF SUB-DIVIDING RACING AGE CATEGORIES RELATIVE TO ABILITY LEVELS

1. Although it is not presented in the tables below, CCC encourages divisions and clubs to offer distinct “sport” and “elite” racing levels within particular race categories for suitable events such as club or local competitions. This option is considered to have particular value where there are large numbers of participating athletes, as it better accommodates different levels of abilities. It is also less intimidating for late comers to the sport.

RACE TIMES, RACE DISTANCES, COURSE PROFILES AND # OF RACES PER SEASON

1. Recommended race distances and durations for each stage of development and racing category are assuming that athletes are looking to complete the race distance in the least time possible, therefore skiing at the highest average intensity that they can maintain throughout the race. Accordingly, competing on longer distances than prescribed for a given category may not necessarily be counter-indicated if the athletes significantly reduce their average racing speed and manage their race pace to focus on completing the distance without reaching a state of exhaustion. In most cases, those opportunities will consist of popular mass start races (loppet) that are not selection events.
2. Race distances shown on the charts have been established based on the targeted race duration, since it is race duration that is used to define appropriate racing activity within the various LTAD stages. It is important that race distances are adapted to the targeted race duration according to the actual course conditions of the race day. For example, a 100m sprint which would normally be of 20 seconds duration (or less) in a particular race category might take longer than 20 seconds if conditions are particularly slow; therefore, the distance should be reduced to make sure the race stays within the targeted 20 seconds duration. This concern for the impact of prevailing course conditions applies mostly for the younger age categories (i.e. at the early stages of development), where there is potentially a wider range of abilities and race times can be expected to vary more than for older and more developed skiers.
3. The proposed ratio of sprint vs distance races reflects the present ratio at national and international levels of competition. Early and late specialization is not taken into account but should only be a consideration at the T2C and T2W stages of LTAD.
4. The proposed total number of races is for official winter competitions only and reflects an average racing season lasting about 4 months. Off-season competitions and other high intensity workouts throughout the year are not included. Coaches should refer to CCC LTAD Model for guidance in this respect.

5. Along with race distances and formats, appropriate course profiles are also an important factor to consider for meeting LTAD-specific development goals within each race category and avoiding counter-productive racing experiences. In this respect, CCC's Events Committee will review current regulations and will provide guidance for all stages of development and racing categories.
6. For the earlier stages of development where fun, skill and speed development are the key racing emphases, "unconventional" race settings are to be considered to optimize development of these factors (e.g. obstacle courses, terrain parks, games). **As well, longer sprint-like events that would fall outside of the recommended racing times for a given stage of development (in order to avoid using anaerobic capacity) may still be adequate and useful as long as such events are design as to emphasize skill development, thus reducing concerns about the use of inappropriate energy systems for a given stage of development. Typically, those events would be held on ski playgrounds, the course integrating several skill challenging components that would naturally disrupt the high racing tempo that you would normally see on those racing distances. In the current model, those races are called "skills races".**

AWARDS

1. To help athletes, coaches and parents acknowledge the potential impact of age related growth differences within each race category, recognition of different ages within a racing category is strongly encouraged. This can be done, for example, by indicating Year Of Birth (YOB) on results and by awarding medals or ribbons per YOB. Such measures are viewed as being particularly desirable in the younger race categories.
2. Wider and more inclusive recognition of participation and performance can also have a positive impact on recruitment and retention at the early stages of development where children's motivation is primarily extrinsic. Although practising a variety of activities demanding different types of abilities should be encouraged to optimize physical literacy during the early LTAD stages, these first three or four stages are also the period when there is the strongest competition between different sports to attract and retain participation. In this respect, early gratification, along with quality programs, has a significant impact.
3. **Although the U23 age group and corresponding T2C stage of development is usually viewed as a minor sub-division of the Senior category (and Open) in domestic competition, it is strongly encouraged that meaningful recognition is provided to this racing sub-category as it represents a distinct stage of development (T2C) for the majority of racers that age.**

IMPACT OF TRAVEL

1. Given the Canadian geographic reality, travelling distances and related costs are important considerations when it comes to establishing the racing calendar for each athlete (i.e. setting priorities) and for determining selection processes for PSOs and NSOs. In most cases, excessive travelling and associated expenses will impair an athlete's capacity to meet LTAD goals, both because of inadequate allocation of financial

resources relative to development priorities and because of the negative impact of extensive travelling on available training and recovery time.

OFFICIALS TRAINING

1. For the later LTAD stages and related race categories, it is important for the optimal development and preparation of athletes that the training of race officials qualifies them to apply rules and exercise judgment in accordance with international standards. The judgment of technique infractions in classic races and of obstruction infractions during mass starts and sprint races are notable examples where this concern is applicable.

Active Start/Fundamentals

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>(5)-6-7-8</p> <p>Atom Boy</p>	<p>FUN</p> <p>Skill development</p> <p>Speed 1 (≤ 5 sec.)</p>	<p>Distance: 0.5 to 1.5 km (5 to 10 min)</p> <p>100-200m (skills race)</p> <p>Total = 4 - 6 races/season</p>	<ul style="list-style-type: none"> ✓ Competition focus is on personal improvement and done in a team environment when possible. ✓ Begin racing after 4 weeks of training on snow ✓ No racing below -15C maximum. (PS: ideally plan alternate activity in case of cancellation) ✓ Adapt race distances to race “time” guidelines for the age grouping ✓ Include some “legs only” events 	<p>Anaerobic (capacity and power) efforts (i.e. 30-90 sec at highest intensity)</p> <p>Terrain extremes (i.e. long or steep hills; only flat)</p>
<p>(5)-6-7-8</p> <p>Atom Girl</p>			<ul style="list-style-type: none"> ✓ Use varied terrain; include some unconventional settings (i.e. obstacle courses; terrain parks; skills races) ✓ Include a variety of race formats (i.e. relays; mass starts); creative elements (i.e. costumes; changes of equipment) ✓ As much as possible, limit extended travel to races; ideally the race experience should be half a day (mostly club and regional races) ✓ Athletes 5-(6) years old (Active Start) should receive participation awards (such as a ribbon) ✓ Athletes (6)–8 (FUNdamentals): acknowledge achievements/results for each YOB (medals, ribbons, etc); recognition awards for all participants is encouraged 	

L2T

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>(9)-10-11-12</p> <p>Pee-wee Boy</p>	<ul style="list-style-type: none"> ✓ Fun ✓ Skill development ✓ Introduce strength using body weight 	<p>Sprints: 100m or < 20 sec.</p> <p>100-300m (skills race)</p> <p>Distance: 1 - 3 km (5 to 20 min)</p>	<ul style="list-style-type: none"> ✓ Competitive focus is on personal improvement, in a team environment ✓ Basic race rules are learned ✓ Basic race evaluation is introduced ✓ Generally begin races after 4 weeks of training on snow ✓ No racing below -15C maximum. (PS: ideally plan alternate activity in case of cancellation) ✓ Early season races should be at the shorter end of the range ✓ Focus on “fun” events that emphasize team effort and skills (i.e. Ski Tournaments) ✓ Adapt race distances to the “time” guidelines for the age grouping ✓ Include a variety of race formats (i.e. relays; mass starts); creative elements (i.e. costumes; changes of equipment) ✓ Use varied terrain; include some unconventional settings (i.e. obstacle courses; terrain parks; skills races); easier terrain earlier in the season ✓ Include some Double Poling and “legs only” events (at shorter distances) ✓ Emphasize that excellent technique is a major factor in racing success ✓ Emphasize the importance of skill dev. through recognition and rewards ✓ Use slightly declining slope for sprint races to develop speed and balance ✓ As much as possible, limit travel to races ✓ Ideally the race experience should be half a day, with only 1-2 key events being one day – club and regional races; provincial cup races when held in region; provincial youth championships ✓ Acknowledge achievements/results for each YOB (medals, ribbons, etc) ✓ Optional participation awards 	<p>Anaerobic (capacity and power) efforts (i.e. 30-90 sec at highest intensity)</p> <p>Terrain extremes (i.e. long or steep hills; only flat)</p>
<p>(8)-9-10-11</p> <p>Pee-wee Girl</p>	<ul style="list-style-type: none"> ✓ Athlete can race at high speed with good technique 	<p>Total = 6 – 8 races/season</p>	This content is shared with the row above and is not repeated here	This content is shared with the row above and is not repeated here

T2T – 1

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>(12)-13-14 Midget Boy</p>	<ul style="list-style-type: none"> ✓ FUN ✓ Skill development ✓ Develop aerobic capacity ✓ Develop speed 2 (≤ 20 sec.) ✓ Develop strength using body weight ✓ Develop tactics: tracking, sprints etc. ✓ Athletes race to win and do their best, but the major focus of training is on refining technique skills ✓ Athletes train in competitive situations several times per week in the form of practice matches, competitive drills and games 	<p style="text-align: center;">Sprints: 1-2x 100m or < 20 sec. 2-3 x 200-400m (skills race)</p> <p style="text-align: center;">Distance: 3 - 10k (10-30 min.)</p> <ul style="list-style-type: none"> ✓ 2 x 3k ✓ 5 x 5k ✓ 1-2 x 7.5k mass start ✓ 0-1 x 10k mass start at end of season <p style="text-align: center;">Total: 8-12 races</p>	<ul style="list-style-type: none"> ✓ Emphasis on personal improvement and personal best ✓ Race on regional and provincial cup series, provincial youth champs and Games, Eastern or Western Canadians if close to home ✓ Begin racing after 4 weeks of training on snow ✓ Start to narrow competitive focus to two sports ✓ Adapt race distances to the “time” guidelines for the age grouping 	<p>Anaerobic (capacity and power) efforts (i.e. 30-90 sec at highest intensity)</p> <p>Terrain extremes (i.e. long or steep hills; all flat)</p>
<p>(11)-12-13 Midget Girl</p>	<ul style="list-style-type: none"> ✓ FUN ✓ Skill development ✓ Develop aerobic capacity ✓ Develop maximal aerobic power (at the end of this period) ✓ Develop speed 2 (≤ 20 sec.) ✓ Develop strength using body weight; learn proper technique for using free weights ✓ Develop tactics: tracking, sprints etc. ✓ Athletes race to win and do their best, but the major focus of training is on refining technique skills ✓ Athletes train in competitive situations several times per week in the form of practice matches, competitive drills and games 	<p style="text-align: center;">Sprints: 1-2x 100m or < 20 sec. 2-3 x 200-400m (skills race)</p> <p style="text-align: center;">Distance: 1.5 - 7.5k (5-30 min.)</p> <ul style="list-style-type: none"> ✓ 5 x 1.5-3k ✓ 2 x 5k ✓ 1-2 x 7.5k mass start at end of season <p style="text-align: center;">Total: 8-12 races</p>	<ul style="list-style-type: none"> ✓ Cap total distance raced over weekends to about 10km when more than one race ✓ Use all the official race formats ✓ Continue to include a few “fun” events that emphasize team effort and skills (skills races) ✓ Use slightly declining slope for sprint races to develop speed and balance ✓ Acknowledge achievements/results for each YOB (medals, ribbons, etc) 	<p>Not enough racing experiences</p>

T2T-2

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p style="text-align: center;">(14)-15 Juvenile Boy</p>	<ul style="list-style-type: none"> ✓ Skill development ✓ Develop aerobic capacity ✓ Develop maximal aerobic power ✓ Develop speed 2 (≤ 20 sec.) ✓ Develop strength using body weight; learn proper technique for using free weights ✓ Develop tactics ✓ Athletes race to win and do their best, but the major focus of training is on refining technique skills ✓ Top level athletes should aim to make their divisional development team in order to be on target for international success 	<p style="text-align: center;">Sprints :</p> <ul style="list-style-type: none"> ✓ 2 x 0.1k (or ≤ 20 sec.): ✓ 2 x 0.8-1k (>2 min.) <p style="text-align: center;">Distance: 3-15k (7-40 min)</p> <ul style="list-style-type: none"> ✓ 3 x 2-3km as team relays or prologue ✓ 7 x 5-10k ✓ 1-2 x 15k mass start end of season <p style="text-align: center;">TOTAL: 13-17 races</p>	<ul style="list-style-type: none"> ✓ Emphasis on personal improvement and personal best ✓ Compete at regional and provincial cup series, provincial youth champs and Games, Eastern or Western Canadians ✓ Compete at National championships to acquire trip experience at a big event ✓ Begin racing after 4 weeks of training on snow ✓ Narrow competitive focus to two sports ✓ Create race situations that develop tactics and ability to stand ground in mass starts events, start and finish (scramble zones, turns near finish, etc) 	<p style="text-align: center;">Long anaerobic capacity effort</p> <p style="text-align: center;">Distances that are too long</p> <p style="text-align: center;">Not enough racing experiences</p>
<p style="text-align: center;">(13)-14-15 Juvenile Girl</p>	<ul style="list-style-type: none"> ✓ Skill development ✓ Develop aerobic capacity ✓ Develop maximal aerobic power ✓ Develop strength ✓ Develop tactics ✓ Develop anaerobic power and capacity ✓ Athletes compete to win and do their best, but the major focus of training is on refining technique skills ✓ Top level athletes should aim to make their divisional development team in order to be on target for international success 	<p style="text-align: center;">Sprints:</p> <ul style="list-style-type: none"> ✓ 2 x 0.1k (or ≤ 20 sec.) ✓ 2 x 0.8-1k (>2 min.) <p style="text-align: center;">Distance: 3-10k (7-40 min)</p> <ul style="list-style-type: none"> ✓ 3 x 2-3km as team relays or prologue ✓ 6 x 5-7.5k ✓ 2 x 10k <p style="text-align: center;">TOTAL: 13-17 races</p>	<ul style="list-style-type: none"> ✓ Limited travel to races; some of yearly racing should be one day events; regional and provincial circuit races; not more than one major championship per year (i.e. Nationals) ✓ Adapt race distances to the “time” guidelines ✓ Use all the official race formats ✓ Continue to include a few “fun” events that emphasize team effort and skills ✓ Acknowledge achievements/results for each YOB (medals, ribbons, etc) 	<p style="text-align: center;">Distances that are too long</p> <p style="text-align: center;">Not enough racing experiences</p>

L2C-1

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>16-17 Junior Boy</p>	<ul style="list-style-type: none"> ✓ Develop aerobic capacity ✓ Develop maximal aerobic power ✓ Develop strength ✓ Develop anaerobic power and capacity ✓ For top level skiers at the end of this stage, acquire N. American and European racing experience to learn more about travel ✓ Develop event specific tactical skills (sprints, mass starts, etc) 	<p style="text-align: center;">Sprints: 6-7 x 1-1.4k</p> <p style="text-align: center;">Distance: 3-30k (7- 90 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 2-4km as team relays or prologue ✓ 5-7 x 5-10k ✓ 2-4 x 15k ✓ 1-2 x 20k mass start or pursuit ✓ 0-1 x 30k mass start end of season <p style="text-align: center;">TOTAL: 20-25 races</p>	<ul style="list-style-type: none"> ✓ Choose between possible national level races to attend; try to limit extensive traveling ✓ Create race situations that develop tactics and ability to stand ground in mass starts events, start and finish (scramble zones, turns near finish, etc) ✓ Limit number of selection races in order to limit extensive travel and cost of competing 	<p>Distances that are too long (athletes need progressive steps towards longer distances)</p>
<p>(15)-16-17 Junior Girl</p>	<ul style="list-style-type: none"> ✓ Introduce and develop knowledge about peaking and periodization ✓ Top level athletes should aim to qualify for their divisional team and/or a National Team Development Center and/or the Junior National Ski Team in order to be on target for international success 	<p style="text-align: center;">Sprints: 6-7 x 0.8-1.2k</p> <p style="text-align: center;">Distance: 3-20k (7- 60 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 2-4km as team relays or prologue ✓ 5-7 x 5-7.5k ✓ 2-4 x 10k ✓ 1-2 x 15k mass start or pursuit ✓ 0-1 x 20k mass start end of season <p style="text-align: center;">TOTAL: 20-25 races</p>	<ul style="list-style-type: none"> ✓ Narrow competitive focus to two sports with a primary focus on xc skiing ✓ Acknowledge achievements/results for each YOB, when numbers warrant and when possible (merchandise, gift certificates, etc; at least show YOB on results lists) 	

L2C-2

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>(17)-18-19</p> <p>Junior Male</p>	<ul style="list-style-type: none"> ✓ Develop aerobic capacity ✓ Develop maximal aerobic power ✓ Develop strength ✓ Develop anaerobic power and capacity ✓ For top level skiers at the end of this stage, acquire N. American and European racing experience to learn more about travel ✓ Develop event specific tactical skills (sprints, mass starts, etc) 	<p style="text-align: center;">Sprints: 6-7 x 1-1.4k</p> <p style="text-align: center;">Distance: 3-30k (7- 90 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 2-4km as team relays or prologue ✓ 7-10 x 10-15k ✓ 2-3 x 20k mass start or pursuit ✓ 1-2 x 30k mass start end of season <p style="text-align: center;">TOTAL: 20-25 races</p>	<ul style="list-style-type: none"> ✓ Choose between possible national level races to attend; try to limit extensive traveling ✓ Create race situations that develop tactics and ability to stand ground in mass starts events, start and finish (scramble zones, turns near finish, etc) ✓ Limit number of selection races in order to limit extensive travel and cost of competing 	<p>Distances that are too long (athletes need progressive steps towards longer distances)</p>
<p>(17)-18-19</p> <p>Junior Female</p>	<ul style="list-style-type: none"> ✓ Introduce and develop knowledge about peaking and periodization ✓ Top level athletes should aim to qualify for their divisional team and/or a National Team Development Center and/or the Junior National Ski Team in order to be on target for international success 	<p style="text-align: center;">Sprints: 6-7 x 0.8-1.2k</p> <p style="text-align: center;">Distance: 3-20k (7- 60 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 2-4km as team relays or prologue ✓ 7-10 x 5-10k ✓ 2-3 x 15k mass start or pursuit ✓ 1-2 x 20k mass start end of season <p style="text-align: center;">TOTAL: 20-25 races</p>	<ul style="list-style-type: none"> ✓ Narrow competitive focus to two sports with a primary focus on xc skiing ✓ Acknowledge achievements/results for each YOB, when numbers warrant and when possible (merchandise, gift certificates, etc; at least show YOB on results lists) 	

T2C

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p style="text-align: center;">20-21-22</p> <p style="text-align: center;">Senior U23 Male</p>	<ul style="list-style-type: none"> ✓ Optimize fitness preparation ✓ Master individual and sport-specific skills ✓ Further develop self-awareness, independence and knowledge about peaking ✓ Optimize event specific tactical skills (sprints, mass starts, etc) 	<p style="text-align: center;">Sprints: 7-8 x 1-1.8k Distance: 3-50k (7-150 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 3-5km as team relays or prologue ✓ 10-12 x 15-20k ✓ 3-4 x 30k mass start or pursuit ✓ 1-2 x 50k mass start end of season <p style="text-align: center;">TOTAL: 25-30 races</p>	<ul style="list-style-type: none"> ✓ Training program with double or triple periodization ✓ Competitive focus on one sport ✓ Evaluate and consider specialization options based on demonstrated predispositions ✓ Choose between possible national level races to attend, trying to limit extensive traveling ✓ Create race situations that develop tactics and ability to stand your ground in mass starts events, start and finish (scramble zones, turns near finish, etc) 	<p style="text-align: center;">Competing against older seniors on longer distances too often (still need ability to perform over 15-20k before 30k+)</p>
<p style="text-align: center;">20-21-22</p> <p style="text-align: center;">Senior U23 Female</p>	<ul style="list-style-type: none"> ✓ For top level athletes in the older part of this age group acquire further N. American and European racing experience to decrease negative impact of travel ✓ Top level athletes should aim to qualify for a National Team Development Center and/or the Senior Development National Ski Team 	<p style="text-align: center;">Sprints 7-8 x 0.8-1.4k Distance: 3-30k (7-90 min.)</p> <ul style="list-style-type: none"> ✓ 2-3 x 3-5km as team relays or prologue ✓ 10-12 x 10-15k ✓ 3-4 x 20k mass start or pursuit ✓ 1-2 x 30k mass start end of season <p style="text-align: center;">TOTAL: 25-30 races</p>	<ul style="list-style-type: none"> ✓ Limit number of selection races to limit extensive traveling needed and to limit cost of competing ✓ Provide U23 category awards and aggregates ✓ Competition calendar should include 1 or 2 mini-tours (3-4 continuous days of racing) 	<p style="text-align: center;">Competing against older seniors on longer distances too often (still need ability to perform over 10-15k before 20k+)</p>

T2W

Average age range and national category	Major Goals for LTAD Stage	Race distances and durations	Other Considerations	Major Factors to Avoid
<p>23+ Senior Male</p>	<ul style="list-style-type: none"> ✓ Maximize event specific tactical preparation (sprints, mass starts, etc) ✓ Optimize peaking ability ✓ Top level athletes should aim to qualify for the Senior World Cup National Ski Team 	<p style="text-align: center;">Sprints: 9-10 x 1-1.8k Distance: 3-50k (7-150 min.)</p> <ul style="list-style-type: none"> ✓ 2-4 x 3-5km prologue ✓ 2 x 10k relay ✓ 8-10 x 15k ✓ 4-6 x 30k ✓ 1-2 x 50k end of season <p style="text-align: center;">TOTAL: 30-35 races</p>	<ul style="list-style-type: none"> ✓ Acquire further international racing experience to decrease negative impact of travel ✓ Based on predisposition, optimize event specialization ✓ Maximize event specific tactical preparation (sprints, mass starts, etc) <p>✓ Competition calendar should include 1 or 2 mini-tours (3-4 continuous days of racing) and up to 1 major tour (Tour de ski= 8 races in 10 days)</p>	<p>Underestimating need to recover despite heavy training and racing load</p>
<p>23+ Senior Female</p>		<p style="text-align: center;">Sprints: 9-10 x 0.8-1.4k Distance: 3-30k (7-90 min.)</p> <ul style="list-style-type: none"> ✓ 2-4 x 3km prologue ✓ 2 x 5k relay ✓ 8-10 x 10-15k ✓ 4-6 x 20k ✓ 1-2 x 30k end of season <p style="text-align: center;">TOTAL: 30-35 races</p>		