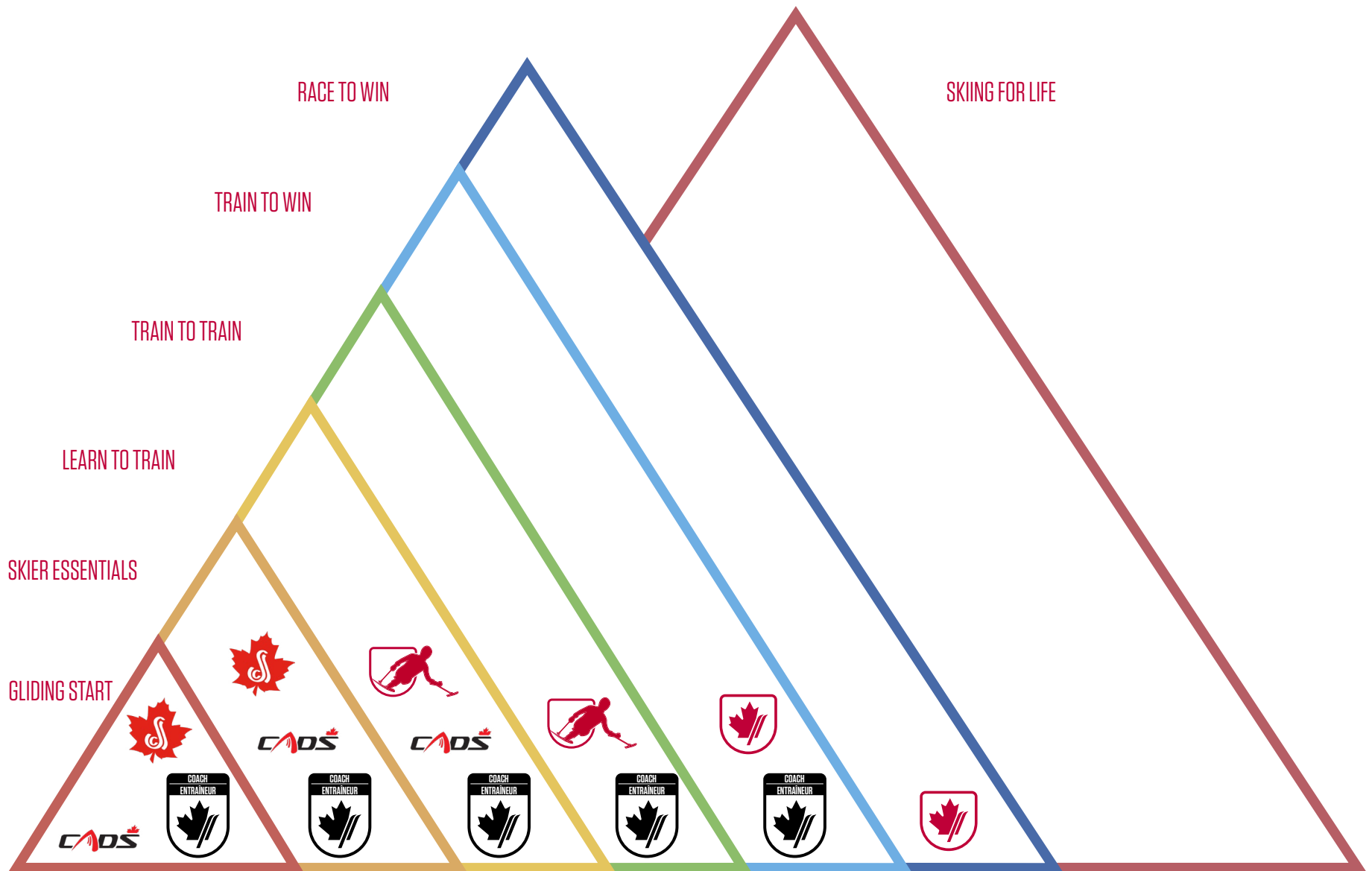




**ALPINE CANADA ALPIN  
PARA-ALPIN LTAD**



**CARVING THE FUTURE**



# INTRODUCTION

Athletes with a physical impairment or Para-Athletes, are above all else exactly that, athletes. As a result the Alpine Canada Alpine believes in a model of inclusion and integration within local ski clubs as youth move through the LTAD model across Canada. Having said this it is crucial that as an organization ACA looks at the unique circumstances of all physically impaired athletes. As such the Para-LTAD was developed to facilitate athletes from the grassroots to the high performance level.

Since the development and implementation of the Para- LTAD document Canada has been recognized for its commitment to providing opportunity for para-alpine participants across the country. With this the Canadian Para-Alpine Ski Team saw AlpineCanada Athletes land on the World Cup podium 24 times in the 2017-2018 season as well as take home 3 Crystal Globes, and 10 Paralympic medals.

ACA is happy to provide the Para-Alpine LTAD and resources to Canadian Athletes at all levels.



Matt Hallat

Para-Alpine Team Athletic Director

Former CPAST Ski team Member





# GLOSSARY OF PARA-ALPINE TERMS

## ACA

Alpine Canada Alpin

## Acquired Physical Impairment

Refers to an individual who has been physically impaired through injury or illness. These and individuals who prior to injury or illness were considered able-bodied participants.

## Adaptive Equipment

A special device which assists in the performance of physical activities.

## Age of experience

Refers to the number of years a participant has been exposed to a ski training environment.

## CADS

Canadian Adaptive Snowsports. CADS is a volunteer based organization that provides opportunities for people with physical and cognitive impairments to experience the joy of participating and competing in adaptive snowsports. CADS is an official feeder into the competition stream in para-alpine skiing.

## Congenital Impairment

Refers to a person who has had an impairment since birth, but is not necessarily hereditary.

## CPAST

Canadian Para-Alpine Ski Team

## LTAD

Long Term Athlete Development Model

## ACA LTAD

Alpine Canada Alpin Long Term Athlete Development Model. A sport specific LTAD model formulated by Alpine Canada Alpin to guide coaches, administrators, program directors, and parents on the scientific and artistic approach to long term athlete development within alpine ski racing, para-alpine, and ski-cross

## Physical Literacy

Refers to the mastering of fundamental movement skills and fundamental sport skills.

## PSO

Provincial Sport Organization

## Stages of development

Refers to the various stages within the LTAD in which a participant progresses.

## IPC

International Paralympic Committee

## WPAS

World Para Alpine Skiing

# ACA LTAD FOR PARA-ALPINE

## What is ACA LTAD?

ACA LTAD is a six stage training, competition, and physical literacy pathway guiding an individual's experience in sport and physical activity from childhood through all phases of life. From simple to complex skills, it utilises the natural stages of physical, mental and emotional growth in participants and matches athletic skills and activities to the participants' stage of development.

It is recognised that an individual may acquire a physical impairment after birth and thus can enter the LTAD at any age. The LTAD is used to ensure a participant's potential is maximised, and encourages lifelong participation.

“Age Of Experience” It is important that each participant or athlete be evaluated based on their developmental stage rather than a purely chronological stage as para athletes may enter the pathway at any age. The assessment of a para-athlete's developmental stage is referred to as their age of experience.

## LTAD for Para-Alpine Ski Racing

Para-alpine ski racing has the same concepts and goals as able body ski racing. The ideal route for any athlete with a physical impairment is to follow the LTAD while being integrated into an able-bodied ski program. Differences made to the LTAD process for para athletes include the following considerations:

- Para-Athletes may have been born with or acquired a physical impairment.
- Children with a congenital impairment may not have had the same opportunity to learn fundamental movement skills because they do not always have the same opportunities for vigorous, physical play during their early years. This situation can also occur with an acquired impairment.
- Para-Athletes may operate in a sporting environment in which there are participants that wouldn't normally be found in able bodied sport. For example, skiers who are visually impaired need guides and competitive skiing requires officials who determine in which division or classification the athlete will fit. Failure of the sport system to develop these support roles may have a long-term negative impact on the athletes development and competition experience.
- Many para-athletes in alpine skiing require the use of adaptive equipment to take advantage of their full athletic ability. This includes sit skis, outriggers, and other various forms of adaptive equipment.

- Because there may be only a few other para-athlete's within a region or province finding para-specific competition may be difficult, this is one reason ACA pushes for integration into local ski clubs.

The holistic development of a para-alpine athlete requires two additional stages from the ACA LTAD, **Awareness** and **First Contact**. Although these are significant stages for all para-athletes, these two additional stages are of particular importance to those participants with an acquired injury who may have had no previous knowledge of para-sport. The Para-LTAD also recognises that an athlete can move from any stage directly into **Skiing for life**.

## Stages

### Awareness

Create awareness of the Para-Alpine programs available to persons with disabilities (both acquired and congenital). Create awareness amongst stakeholders who work with individuals with impairments or para-Alpine skiing and racing.

### First Contact

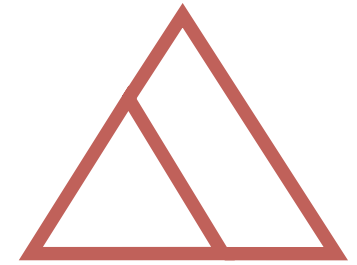
Ensure a positive first experience. Need to create the right conditions for successful integration. Includes securing sufficient volunteers, funding and appropriate equipment available.

First contact is likely in the setting of a CADS or other partner adaptive ski program.



# GLIDING START

"Ignite the spark"



Age of experience: 0-2 yrs. First Contact made with local CADS club or adaptive ski organization.

## Overview:

- Teach the basic elements of skiing.
- Encourage and create a fun environment.

## Performance Benchmark:

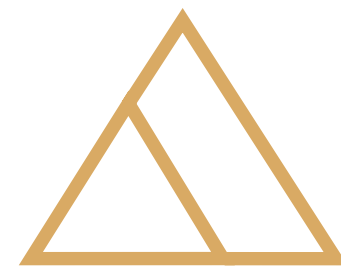
- Basic stance and balance.
- Basic mobility (moving and balancing with equipment.)
- Balancing on skis (with adaptive equipment where required).
- Sliding on snow.
- Straight running on a gentle slope.
- Stopping (terrain assisted, straight, then single turn to a stop).
- Basic linked turns.

**Note:** Skill focus is on stance and balance, and basic pivoting skills. Edging is introduced not actively but as a result of maintaining stance and balance while pivoting the ski on beginner terrain.



# SKIER ESSENTIALS

"FORM THE FOUNDATION"



Age of experience: 0-4 yrs. Have been introduced to skiing and have started skill development. Must master fundamental movement skills before moving to sport specific skills. Beginning to link turns together.

## Overview:

- Have fun and be active, through lessons and other ski opportunities and special events such as CADS Festival, fun races, etc.
- Not all skiers will progress past this stage; the focus for these participants is active participation in sport and their goal may be Skiing for Life.

## Performance Benchmark:

- Learning a good athletic position.
- Balancing on the outside ski for grip against the snow.
- Pivoting - turning the legs and/or adaptive devices to achieve change of direction.
- Use of edging to improve control and performance (lateral balance).
- Use of turn shape to control speed.
- Ability to link turns on beginner/ easy intermediate terrain.





# LEARN TO TRAIN

"Learn The Sport"

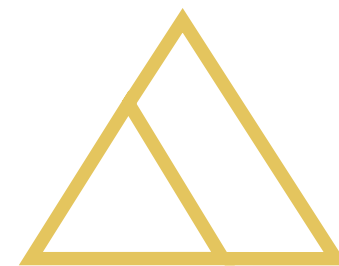
Age of experience: 2-6 yrs. Able to ski independently. Introduced to a learn to race program. Exposure to different snow and terrain conditions.

## Overview:

- Primary responsibility starts to shift from CADS & independent learn-to-ski programs to the local race programs/clubs (able-bodied and/or adaptive programs).
- CADS programs, local race programs and PSOs initiate talent identification.

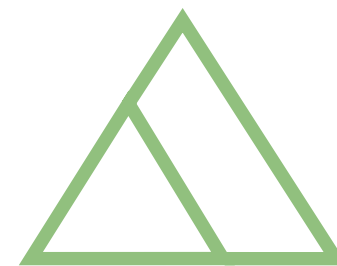
## Performance Benchmark:

- Fundamentals of ski tuning introduced.
- Loads and unloads lift independently.
- Refining balance and coordination movements.
- Correct use of pole plant or adaptive turning device.
- Comfortable skiing on intermediate terrain with some introduction /exposure to advanced terrain.
- Understanding of how to adjust turn shape relative to pitch and snow conditions and also to desired speed.
- Understands basic concept of carving (idea of adjusting turn shape by increasing/ decreasing the edge angle).
- Exposure to and basic understanding of Slalom and Giant Slalom and how to ski them.
- Introduction to speed event elements.



# TRAIN TO TRAIN

"Build The Ski Racer"



Age of experience: 4+ yrs. Take part in Local, Provincial and WPAS races. Comfortable skiing on all terrain.

## Overview:

- Starting to identify para athletes with race potential.
- Seek available opportunity for athletes to demonstrate this to the PSO and ACA. (i.e. race, camp, other.)

## Performance Benchmark:

- Understands ski racing procedures and rules.
- Introduction of the training effect (periodization, dryland training, mental preparation, sport nutrition, etc.).
- Fundamentals of ski tuning developed.
- Confidently skis intermediate and advanced terrain independent with a solid understanding of basic ski skills.
- With direction, can work independently on skill development and provide feedback to coach regarding progress and development.
- Can independently ski intermediate to advanced terrain in gates.
- Carves the ski and balances throughout the turn.
- Adjusts turn shape to suit the variations of a race course.
- Ability to adjust balance, coordination and speed as required.
- Refinement of basic technical skills and consolidation of advanced technical skills in free skiing and gates.
- Consolidation of tactical skills (line, risk management, decision making).
- Initiation to the Speed disciplines.



# TRAIN TO RACE

“Build The Ski Racer, Optimize The Engine”

Age of experience: 4+ yrs. Seeking to compete on CFAST may be identified as a CFAST prospect. Athlete owns all of their own equipment.

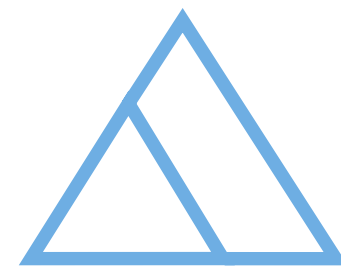
## Overview:

- PSO and ACA work together to provide the best opportunity for athletes to excel and reach their potential. (i.e. through camps, races, other.)



## Performance Benchmark:

- Accountable for their actions.
- Understanding of being a self-sufficient athlete and can seek different funding opportunities.
- Understands and demonstrates the training effect (periodization, dryland training, mental preparation, sport nutrition, etc.).
- Fundamentals of ski tuning enhanced
- Independently and confidently skis any terrain on the mountain.
- Independently skis all terrain on the mountain in gates.
- Can create speed throughout the turn.
- Refinement in advanced technical skills and tactical skills in gates on advanced terrain.
- Skis and competes in all 5 disciplines.





# TRAIN TO RACE- RACE TO WIN

“Optimize The Engine”

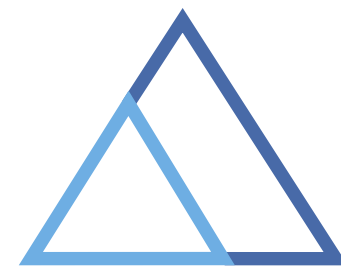
Age of experience: 4+ yrs. Identified member of the Canadian Para-Alpine Ski Development Team or as a CPAST prospect.

## Overview:

- ACA takes responsibility for the athletes at this stage, support from ACA may include coaching and instruction, funding, competitions, facilities, athlete support, selection criteria, sport science, etc.

## Performance Benchmark:

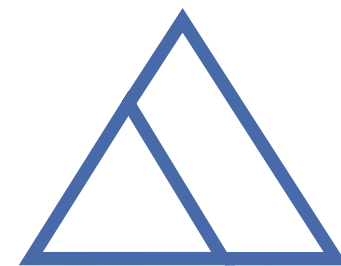
- Strong mental composure.
- Increased knowledge of nutrition, mental training and strength and conditioning.
- Demonstrates a variety of advanced technical and tactical skills.
- Adapts to new conditions and environments quickly and efficiently.
- Has mastered advanced race skills, and is refining them to make them better and faster.
- Specialization in one or more disciplines.





# RACE TO WIN

"Be A Professional Ski Racer"



Age Of experience 4+yrs Member of CFAST development or World Cup team.

## Overview:

- ACA is fully responsible for all aspects of athletes training, development, and racing.

## Performance Benchmark

- Determined by ACA Coaches and staff.
- Will be looking for specific performance targets in Europa Cup, World Cup, World Championship, and Paralympic Events.

## Important Notes

Although the LTAD is broken into 6 stages of development, the previous descriptions illustrate the fact that there is much crossover between the last two stages (Train to Race, and Race to win), and some athletes may spend more time refining skills and consolidating skills in one discipline or aspect of ski racing while perfecting others.

# PHYSICAL TRAINING FOR PARA-ALPINE

Much like the development of a long term plan for skiing, the same must be looked at for physical aspect of a participant or athlete. For the Para-Athlete we must make certain considerations based on the physical impairment of the individual.

It is necessary to realize that due to the nature of differences between each athlete's needs, every aspect of the program will be considered on an individual basis. Training does not differ from an able-bodied regimen, however extra considerations should be taken into account for each category:

## Visually Impaired

**Goals:** develop proprioceptive awareness and balance to increase confidence in spatial moving, if possible, increase chemistry and communication with guide

### **Considerations:**

- Not usually any physical restrictions, no modifications on testing procedures.
- Need to educate and progress through body weight movements to movements with external objects and object manipulation.
- Landing and jumping progressions can help to build spatial awareness, which can increase balance and coordination.
- Outdoor conditioning workouts will most often require a guide with experience

## Sitting

**Goals:** Develop and improve sitting positioning, balance, core strength, scapular, rotator cuff and potentially hip stabilizers

### **Considerations:**

- **SAFETY:** gain awareness of their ASIA (American Spinal Injury Association) status and lesion level. Gain a clear understanding of their current function (both sensation and motor) prior to starting program
- Orthostatic hypertension: gradually change positions

- Autonomic dysreflexia (T6 and above): ensure they have used the washroom prior to their workouts and there are no bladder infections, restrictive clothes or other potentially noxious stimuli present
- Respiratory function: do they need an assisted cough
- Caution with overtraining as this will affect their ability to carry out activities of daily living
- May need more help than normal with movement of themselves and equipment around the weight room or training area
- Be aware of areas without feeling and rubbing, pressure points during certain movements

## Standing

**Goals:** Address muscular imbalances that may occur. Engage and encourage proper movement patterns, but understand that they may not be perfect

- **SAFETY:** If working with an amputee, ensure that skin care is managed, particularly if training in a hot environment.
- Understand the differences in range of motion, strength and optimal positioning with each athlete. All of the facets of training (strength, power, agility, etc.) can be trained, however they all may look different between athletes and possibly within an athlete (i.e. left and right sides).
- Some athletes (eg. Cerebral Palsy or stroke) may need different movements for each side of their body, don't neglect lessfunctioning side.

It is imperative that the coaching staff and integrated support staff (IST) communicate and are aware of each athlete's functional status, technical levels and abilities. This will allow for better flow and alignment of physical, tactical, mental and technical development to create the best possible environment for maximal overall growth.

# CLASSIFICATION

Para-Alpine ski racing using a classification system to ensure competition is fair based on a participant's level of physical impairment. Para-Alpine skiing competition has three categories for both men and women:

**Standing, Sitting and Visually Impaired.**

Athletes attend a IPC Classification event and are given one of the following Classifications.

## **Sport classes LW 1-9: Standing skiers**

Skiers with leg impairments:

**Sport Class LW 1:** This sport class is allocated to athletes with an impairment that strongly affects both legs, for example an above knee amputation of both legs or significant muscle weakness in both legs.

**Sport Class LW 2:** Skiers have a significant impairment in one leg. Some skiers, for example, have an impaired leg from birth. You will see them ski with one ski only.

**Sport Class LW 3:** This sport class is for athletes who have a moderate impairment in both legs. Some LW 3 skiers have mild coordination problems or muscle weakness in both legs, or a below knee amputation in both legs.


**Sport Class LW 4:** Similar to skiers in Sport Class LW 2, LW 4 skiers have an impairment in one leg only, but with less Activity Limitation. A typical example is a below knee amputation in one leg. They will use two skis during the race.

Skiers with arm impairments:

**Sport Class LW 5/7:** Athletes in this sport class ski with an impairment in both arms. Some athletes have amputations and others have limited muscle power or coordination problems. They will race down the slopes without ski poles.

**Sport Class LW 6/8:** Skiers have an impairment in one arm. Skiers will compete with one ski pole only.  
Skiers with combined arm and leg impairments:





**Sport Class LW 9:** Skiers in this Sport Class have an impairment that affects arms and legs. Some skiers in this class have coordination problems, such as spasticity or some loss of control over one side of their body. Depending on their abilities, they will ski with one or two skis and one, two, or no poles.

**Sport Classes LW 10-12:** Sit-skiers All sit-skiers have an impairment affecting their legs. They are allocated different sport classes depending on their sitting balance, which is very important for acceleration and balancing during the races.

**Sport Class LW 10:** Skiers in this sport class have no or minimal trunk stability, for example due to spinal cord injuries or spina bifida. They therefore rely mainly on their arms to manoeuvre the sit-ski.

**Sport Class LW 11:** Skiers have good abilities in their upper trunk, but very limited control in their lower trunk and hips, as it would be the case for skiers with lower spinal cord injuries.

**Sport Class LW 12:** This sport class includes skiers with normal or only slightly decreased trunk function and leg impairments. It's possible skiers with leg impairments in Sport Classes LW 1-4 can also fit this sport class.

### **Sport Classes B1-3: Skiers with visual impairment**

**Sport Class B1:** Skiers in this sport class are either blind or have very low visual acuity. By way of explanation, their level of visual acuity is such that the athlete cannot recognize the letter "E" (15x15cm in size) from a distance of 25cm. During the race they are required to wear eyeshades.

**Sport Class B2:** This sport class profile includes athletes with a higher visual acuity than athletes competing in the B1 class, but they are unable to recognize the letter "E" from a distance of 4m. Moreover, athletes with a visual field of less than 10 degrees diameter are eligible for this sport class.

**Sport Class B3:** The B3 sport class profile describes the least severe visual impairment eligible for Alpine Skiing. Eligible athletes either have a restricted visual field of less than 40 degrees diameter or a low visual acuity.

In Para alpine skiing, you will see athletes with visual impairment skiing with a guide. The guide skis in front of the athlete and verbally gives directions to the athlete.

# NOTES



# ALPINE CANADA ALPIN PARA-ALPIN LTAD



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