

APPENDIX A - COACHING ATHLETES WITH A DISABILITY



Coaching Tip: Every child deserves a competent coach.
Source: National Coaching Certification Program



A.1 Introduction

Cross-country skiing is a sport that can be enjoyed by all regardless of the type of disability - physical or intellectual.

To a large extent, everything in Cross Country Canada's able-bodied Long Term Athlete Development model is applicable to athletes with a disability as well. It is the starting point for the development of all cross-country skiers. Therefore, this section focuses solely on factors that need to be considered when working with athletes with a disability - either modifications or additional factors that need to be addressed.

Cross Country Canada, its divisions and clubs provide programming for both athletes with congenital physical disabilities and athletes with physical disabilities acquired later in life. In addition, sport specific technical training is provided to coaches who work with athletes with intellectual disabilities.

A.1.1 Coaching Athletes with a Disability

Individuals with a disability need lifelong access to trained and knowledgeable teachers and coaches when they engage in physical activity and sport for their health and enjoyment, particularly if they want to learn a new sport. For this reason, Cross Country Canada's NCCP program includes a coach education stream specifically for training and certifying coaches for this purpose.

Teachers and coaches working with athletes in the Active Start, FUNdamentals and Learning to Train stages need to be versed in sensitization tips and techniques on introducing athletes with a disability to sport situations. It is essential for them to be able to create a positive learning environment and adapt equipment, skills and rules in order to get individuals involved and keep them involved in sport.

Coaches working with athletes in the Training to Train, Learning to Compete and Training to Compete stages need: to be specialists in working at the developmental level; to understand how to adapt physiological activities and skill development; and to have a good knowledge of classification and competition rules.

Coaches training athletes at the Training to Win stage need to have: advanced sport specific technical knowledge; knowledge of adaptations for physiological and skill development; knowledge of disability characteristics relating to cross-country skiing and the interface with equipment if specialized equipment is required; and knowledge of IPC classification and competition rules in order to be effective in their role.

A.1.2 Glossary of Terms

- ❑ **Access** refers to the availability of programs, services and facilities to persons with a disability. It also refers to attitudes and support systems that ensure that athletes with a disability can be participating and contributing members of communities. A program, service, or facility is said to be accessible if it can be utilized by someone with a disability.





- ❑ **Accessibility** refers to the promotion of the functional independence of individuals through the elimination of barriers.
- ❑ **Acquired Disability** means the disability was not present at birth.
- ❑ **Canadian Paralympic Committee (CPC)** refers to the national governing body of the Paralympic Movement in Canada. The CPC delivers programs that strengthen its objectives, including sending Canadian teams to the Paralympic Games. It also empowers persons with physical disabilities, through sport, at all levels. To view the CPC website go to www.paralympic.ca.
- ❑ **Congenital Disability** means the disability was present at birth.
- ❑ **Disability** is a reduction of functional ability resulting from impairment. Additional information on the different types of disabilities can be found on the IPC website at www.paralympic.org.
- ❑ **Impairment** is an anatomic, physiological or functional loss, which may or may not result in a disability.
- ❑ **Inclusive** (in the context of this section) means everyone can participate equitably.
- ❑ **Intellectual Disability** refers to a condition of arrested or incomplete development of the mind characterized by impairment of skills and overall intelligence in areas such as cognition, language, and motor and social abilities. Although reduced level of intellectual functioning is the characteristic feature of this disorder, the diagnosis is made only if it is associated with a diminished ability to adapt to the daily demands of the normal social environment. An intellectual disability can occur with or without any other physical or mental disorders.
- ❑ **International Paralympic Committee (IPC)** refers to the global governing body of the Paralympic movement. The IPC organizes both the Paralympic Winter Games and Paralympic Summer Games and serves as the International Federation for nine sports, for which it supervises and co-ordinates a World Championships and other competitions. The IPC is committed to enabling Paralympic athletes to achieve sporting excellence and to developing sport opportunities for all persons with a disability from beginner to elite levels. In addition, the IPC aims to promote the Paralympic values which include courage, determination, inspiration and equality. To view the IPC website go to www.paralympic.org.
- ❑ **Peak Strength Velocity (PSV)** is the maximum rate of increase in strength during the growth spurt. The age of maximum increase in strength can be described as the age at PSV.
- ❑ **Peak Weight Velocity (PWV)** is the maximum rate of increase in weight during the growth spurt. The age of maximum increase in weight can be described as the age at PWV.
- ❑ **Physical Disability** refers to difficulty moving or coordinating a part of the body, muscle weakness, tremors and, in extreme cases, paralysis in one or more parts of the body. Physical disabilities can be congenital, such as muscular dystrophy; or acquired, such as tendonitis. Physical disabilities affect an individual's ability to:
 - ✓ perform manual tasks, such as hold a pen, grip and turn a key, type on a keyboard, click a mouse button or twist a doorknob;





- ✓ control the speed of one's movements;
 - ✓ coordinate one's movements;
 - ✓ move rapidly;
 - ✓ experience balance and orientation;
 - ✓ move one's arms or legs fully, e.g., climb stairs;
 - ✓ move around independently, e.g. walk any distance, easily get into or out of a car, stand for an extended period;
 - ✓ reach, pull, push or manipulate objects; and/or
 - ✓ have strength or endurance.
- ❑ **Sighted Guide** is another athlete who skis with an athlete with blindness/visual impairment. In a competition guides are required to wear a bright bib with the same number as the visually impaired athlete they are guiding, and to guide them by voice only except in very specific situations where the race rules allow otherwise.
- ❑ **Sit-skis** are two cross-country skis with an accessible chair attached to the top of them. They are used by athletes who have spinal cord injuries, leg weaknesses or amputations.





WORDS WITH DIGNITY

The following terms are suggested to describe persons with disabilities.

INSTEAD OF	USE	INSTEAD OF	USE
disabled, handicapped or crippled	person with a disability or people with disabilities	physically challenged	person with a physical disability
crippled by, afflicted with, suffering from or deformed	person who has or person with	mental patient, mentally ill, mental or insane	person who has or person with (e.g. a mental illness or schizophrenia)
lame	person who has a mobility impairment	learning disabled or learning difficulty	person with a learning disability
confined, bound or restricted to a wheelchair	person who uses a wheelchair	visually impaired (as a collective noun) or blind	people who have a visual impairment
deaf and dumb, deaf, deaf mute or hearing impaired	person who is (e.g. deaf or hard of hearing)	disabled sport	sport for athletes with disabilities
retarded or mentally retarded	person with an intellectual disability	disabled community	disability community
spastic	person with cerebral palsy		

***Remember, appropriate terminology
changes with the times.***

If in doubt, ask.





A.2 Important Factors Influencing the Development Process for Athletes with a Physical Disability

Research points to a number of key factors that influence the development of athletes with a disability. Building programs around these factors will help athletes experience both optimal development in their chosen sport and lifelong involvement in physical activity.

Types of Disability

Athletes may be born with a disability (i.e. congenital disability), or they may acquire a disability later in life.

- ☐ **Congenital Disability.** Children with a congenital disability may not have the same opportunity to learn FUNdamental movement skills as able-bodied children because they may not have the same opportunities for vigorous, physical play during their early years (the Active Start stage of development). This is sometimes due to long periods of hospitalization and the lack of suitable physical education programs, but it may also be due to parents or caregivers being overly protective, a situation that can also occur with an acquired disability. It should be recognized that children with congenital disabilities progress through LTAD stages the same way, and with similar timelines, as able-bodied children.
- ☐ **Acquired Disability.** Athletes who acquire their disability later in life, and are then introduced to cross-country skiing, will likely have progressed through the first three or four LTAD stages already, depending on when their disability occurred. They may have to relearn some FUNdamental movement skills with their new body, but they can expect to progress through these skills at a much faster rate than the first time they went through them.

Athletes with a disability pass through the same stages as able-bodied athletes, although the ages and rate of progress may differ.

Source: No Accidental Champions

The Ten Year Journey

Athletes with congenital disabilities follow a development pathway similar in length to that required for able-bodied athletes, while athletes with a disability acquired later in life may reach the international level as a competitor in less than ten years post injury, depending on their level of development pre-disability.

The FUNdamentals

Children with a disability should acquire FUNdamental movement and sport skills (physical literacy) through fun and games, the same way able-bodied athletes do. This needs to be achieved prior to puberty.





Children have difficulty acquiring these skills because:

- ☐ Overly protective parents, caregivers, rehabilitation facility staff, teachers and coaches shield them from the bumps and bruises of childhood play.
- ☐ Most school systems don't have well-developed, adapted physical education programs.
- ☐ Coaches/programs are reluctant to include children with a disability in their activities because of a lack of resources and a lack of knowledge about how to integrate them.
- ☐ Creativity and extra effort are required to integrate an individual with a disability into a group activity where FUNdamental skills are practised and physical literacy is developed.

It is important for the acquisition of daily living FUNdamentals to take place as soon as possible after the onset of a disability. The ability to perform basic transfers from vehicle to chair, and chair to sit-ski should be acquired prior to learning basic sport skills, especially if the individual has low upper body strength. Coaches should be aware of this because support is often focused on arranging basic living elements (i.e. transportation, finding new schools, doctor appointments, surgeries, etc.) rather than developing these important skills.

The physical literacy skills needed by children with a disability vary greatly depending on the nature and extent of their disability. They should include all the same skills learned by able-bodied children (modified as required), as well as the additional skills required for effective use of assistive devices.

Regardless of their previous physical skill, individuals who acquire a disability often have to learn new physical literacy skills in order to use a sit-ski, use a prosthetic limb or accommodate a restricted range of movement. Even if the athlete is an adult, it is critical that he/she learn the FUNdamentals of new movement and sport skills (with the new body), so that those skills can be applied to a wide range of sports and recreational activities.

NOTE: Approximately 25% of children with disabilities will require help with everyday activities, including personal care (e.g. bathing, dressing, feeding, moving about within the home), because of a medical condition or health problem.

Specialization

Disability sports are late specialization sports. It is critically important that children with congenital or early-acquired physical disabilities be exposed to the full range of FUNdamental movement skills before specializing in a sport. Similarly, adults with an acquired disability should master their new FUNdamental movement skills before specializing in a sport.

It is also important that children with an intellectual disability be exposed to the full range of FUNdamental movement skills before specializing in a sport.





Age Factors

Some congenital disabilities are known to influence childhood/adolescent development and the timing of puberty (i.e. children with spina bifida are known to experience puberty earlier than their peers). However, although the timing of puberty may vary, the sequence of development that the child/adolescent goes through is likely to remain the same.

It is important to note that due to the variations in the timing of puberty (and therefore peak height velocity), it is probable that there will be variations in the ages at which windows of optimal trainability occur. However, in the absence of definitive data to indicate otherwise, athletes with congenital disabilities should follow the same development pathway and timelines as able-bodied athletes. For those who have suffered a traumatic injury (acquired disability), no research has been done to determine when optimal training occurs.

Much more research is needed before a full understanding of these areas is achieved.

Children with intellectual disabilities often enter puberty early but complete the process later than their peers.

Trainability

Very little is known about periods of optimal trainability for individuals with a disability. In the absence of information to the contrary, it is therefore suggested that for children with a congenital disability, the ages of optimum trainability, as shown in section 2.5 of this Reference Material, be adjusted based on the observed age of puberty. Whether or not there are optimal periods of trainability during post-injury rehabilitation still needs to be investigated.

Medical operations and drug therapy may also delay Peak Height Velocity (PHV), Peak Weight Velocity (PWV) and Peak Strength Velocity (PSV), either as a result of training interruptions or a lengthy recovery period (months to years).

Athletes who acquire a disability after adolescence will already have gone through the periods of optimal trainability pre-disability, and an assessment will be required in order to determine what the athletes' training needs are.

More research is needed to understand optimal athlete development.

Source: No Accidental Champions

Training and Competition Partners

For athletes with a disability, training and competition partners are an essential and integral part of their sport experience. Therefore, it is important that the support for the training and competition partners be equal to the support for the athletes (with a disability) themselves. It is also important to match athletes and partners appropriately. For skiers in the early stages of





development, finding a ski partner with comparable ski abilities is usually adequate. However, as skiers strive for higher levels of performance, it is important to have training and competition partners that are paired more closely based on physique, skill level and fitness. Recent retirees from National Ski Team and college/university racing teams often transition well into these roles.

To continue to improve sport performance, athletes' training and competition partners need to be equally committed to the sport, and they need to be recognized as athletes in their own right. As athletes with a disability improve, they may need to replace their existing - and sometimes long-term - partners with partners whose athletic performance can keep pace with theirs. Athletes cannot improve and become successful at higher levels of competition if they seriously outperform their partners or become incompatible with a partner who is working with them.

Athletes with visual impairment cannot usually travel, train or race without a sighted guide.

Athletes with severe disabilities may not be able to participate in sport beyond the recreational level. If they are able to participate in competitive cross-country skiing they may require a custodian or companion to look after their daily needs while they are traveling, training or at races. Daily living support for athletes who require it allows them to focus more on their training and performance and less on daily logistics. On the other hand, a lack of daily living support will make their progression up the LTAD stages challenging, and may even result in health issues (e.g. untreated pressure sores).

Physical, Mental, Cognitive and Emotional Development

Sport can play an invaluable role in helping individuals with a disability develop self-confidence and self-worth, as well as in learning how to set and achieve personal goals.

Teens with disabilities are particularly vulnerable, and may have difficulty forming a healthy self-image. Teens with disabilities that are physically apparent will be very aware of how their appearance differs from society's desirable image. As a result, peer relationships and fitting in with a peer group are critically important to help them to establish their own unique identity.

Although self-esteem and self-image are promoted by participation in sport, few school sport programs are adapted to children and teens with disabling conditions. To better understand the disabilities of student athletes, teachers and coaches should refer to the International Paralympic Committee (IPC) website at www.paralympic.ca, or participate in NCCP training for coaches of cross-country skiers with a disability.

Consideration of mental, social and emotional development is particularly important when working with athletes with an intellectual disability. The development of characteristics and implications for coaches needs to be interpreted in light of each athlete's mental and developmental age, rather than chronological age.





Periodization

There is little or no research evidence that periodization for athletes with a disability is substantially different from that for able-bodied athletes. However, there is some evidence to indicate that:

- ❑ quadriplegic athletes do not have the ability to raise their heart rate, and as a result all adaptation is in the peripheral muscles; and
- ❑ quadraplegics have problems with regulating their body temperature (including an inability to sweat when hot), and athletes with spinal cord injuries above T6 may experience automatic dysreflexia - a sudden rapid increase in heart rate and blood pressure that poses a serious health risk.

These factors may need to be taken into consideration when using periodization as a planning technique.

In the LTAD context, periodization connects the developmental stage the skier is in to the requirements of that stage. It is therefore an essential component of optimal sports programming and athlete development at all levels

Facilities

In order to offer cross-country ski programs to individuals with a disability, it is important to have access to a ski facility that is accessible to them. For example, ski trails need to be marked differently because a moderate downhill for an able-bodied skier may be a dangerous downhill to a visually impaired skier or sit skier. Another example would be the need for a warm building at the trail head, as the body mechanisms that keep athletes with some disabilities warm may not be as efficient as those of an able-bodied skier.

Equipment

Specialized equipment may be required. A sport-specific example of this would be sit-skis or kneeling sleds, which are commonly used by skiers with disabilities. Individuals starting out rarely have this equipment, however, and this is a costly investment for clubs to undertake. To help meet this challenge, interested groups or individuals are encouraged to contact their provincial sport organizations (divisions of Cross Country Canada) for information on what is being recommended for that region. Equipment considerations include the following:

- ❑ **First Contact/FUNDamentals and Learning to Train.** Children need equipment designed for their age, size, strength and skill. This is critical to making early experiences positive and will pay off by encouraging a life-long love of physical activity and sport, which in turn benefits their health.
- ❑ **Training to Train through to Training to Compete.** It is essential for the equipment to be fitted to the athlete properly for optimal performance during the “excellence” stages. For example, sit skis and kneeling sleds need to be custom made in order to fit each athlete’s high performance requirements.
- ❑ **Training to Win.** The sport scientists who work with athletes at this level have to develop partnerships with equipment manufacturers in order to design the innovative world-





class equipment that is required to give athletes a competitive advantage in international competition.

- ❑ **Correct Prosthesis.** For those athletes who require them, selecting the correct prosthetic limb is essential for optimal performance. For example, most individuals who ambulate throughout the household and community will find that a solid-ankle cushion heel (SACH) prosthetic foot is efficient and meets their needs, while most competitive athletes would prefer to use the newly-developed dynamic response prosthetic foot (the dynamic response foot deforms under a load but retains the memory of its pre-stressed configuration and returns it to its original shape upon removal of the load).

Skilled Technicians and Sport Scientists

In all LTAD stages, skilled technicians play an important role in ensuring the equipment and ski preparation needs of athletes are met. In particular, skilled technicians are needed to give athletes pursuing personal excellence a competitive advantage by taking information from sport scientists and finding suitable methods of applying it to the athletes they are working with.

Sport scientists make a major contribution to physical literacy through research in the areas of optimum acquisition of skills, establishment of effective learning environments and the identification of activities and teaching methods that enhance the learning of FUNdamental movement skills. However, a particular emphasis needs to be placed on finding out more about the early skill learning of children or adults with a disability, about which little is currently known.

At the Training to Train, Learning to Compete and Training to Compete stages of LTAD, sport science can best contribute through optimization of performance techniques and a better understanding of the individualization of the interface between the athlete and their adaptive sporting equipment. This may also include strapping methods. In addition, refinement of training loads based on periodic evaluations of physiological status and development of sound sport psychology programs, both based on the developmental age of the athletes, is important.

Injury patterns have been identified for certain groups, with wheelchair athletes typically sustaining upper extremity injuries, blind athletes sustaining lower extremity injuries and cerebral palsy athletes sustaining both. Common problems affecting wheelchair athletes include autonomic dysreflexia, difficulty with thermoregulation, pressure sores, neurogenic bladder, premature osteoporosis, peripheral nerve entrapment syndromes and upper extremity injuries. Cerebral palsy athletes often have injuries involving the knee and foot due to problems with spasticity and foot deformities. Amputee athletes sustain injuries to the stump, spine and intact limbs.

At the Training to Win stage, athletes need state-of-the-art physiological, biomechanical and psychological testing and training prescriptions. Coaches, athletes and parents need to understand existing sport science, and sport scientists need to undertake original and applied research on sport performance techniques, training methods and equipment designed to give these athletes a competitive advantage at the international level.

Intellectually disabled athletes may also have underlying ocular and visual defects, congenital cardiac anomalies and atlantoaxial instability that predispose them to injuries.





Competition Calendar Planning

- ❑ **International Competition.** At the international level, cross-country skiing is governed by the International Paralympic Committee (IPC), in conjunction with the IPC Nordic Skiing Technical Committee, which uses modified rules of the International Ski Federation (FIS) for all sanctioned competitions. This Committee also uses modified rules of the International Biathlon Union (IBU) for governing sanctioned competitions in the sport of biathlon.

International competition is open to athletes with a physical disability and blindness/visual impairment. A person in a wheelchair, depending on functional disability, uses a sit-ski. Athletes with blindness/visual impairment ski with a sighted guide. Male and female athletes compete in short distance, middle distance and long distance races ranging from 2.5km (female sit-ski and relays) to 20km (male standing and visually impaired). They also participate in team relays using both classic and skating techniques. The first international competition was held at the 1976 Paralympic Winter Games in Örnsköldsvik, Sweden. By 2006, 24 countries were competing in the cross-country skiing and biathlon arena. Individual sprint events are now beginning to appear at World Cup and World Championships events.

Internationally, Canadian athletes compete in one of three categories: visually impaired, standing and sitting. Domestically, two categories are offered - standing and sitting.

Domestic Competition. At the domestic level, cross-country skiing is governed by Cross Country Canada. Athletes need access to competitions with well trained ancillary personnel such as officials, classifiers and guides, plus custodians for severely disabled athletes, to make sure that their needs are met.

Providing enough competitions to allow for optimal development opportunities is a major challenge due to the small number of athletes in the system and the fact that they are divided into many groups according to different disability types. Divisions and clubs have to be creative to ensure that athletes get opportunities that are suitable for their age, skill and fitness levels. The percentage classification system helps to reduce the scale of this challenge.

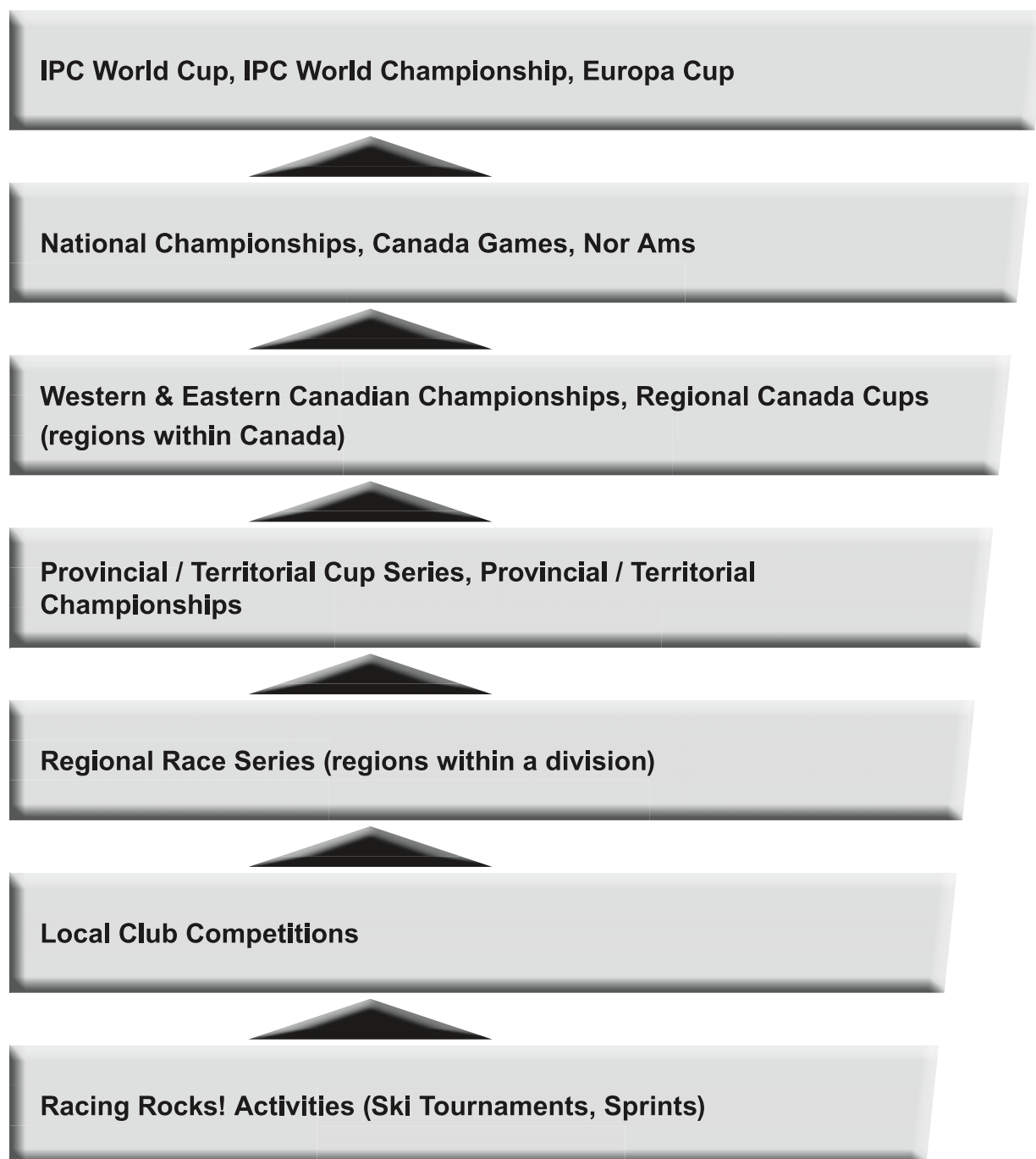
The structure of cross-country ski competitions encourages the integration of able-bodied skiers and skiers with a disability at Provincial Cup, NorAm, National Championships and Canada Winter Games competitions.

- ❑ **Local Competition.** Local, fun events with little or no focus on results can provide a non-threatening environment for introducing athletes to competition. This is also an effective way to gain exposure in the community for club programs for athletes with a disability.





Figure 1: Competitor Pathway for Athletes with a Disability





A.3 Stages of LTAD for Athletes with a Disability

While there are many similarities between athletes with a disability and able-bodied athletes, there are also some differences that can change the LTAD process.

To better understand LTAD for athletes with a disability, it is important to keep the following points in mind:

- ❑ Athletes with congenital disabilities progress through the LTAD stages at the same age as able-bodied athletes.
- ❑ The lifelong importance of an “Active Start” for children with a congenital disability cannot be over-emphasized.
- ❑ Athletes who acquire their disabilities still need to make an active start and learn (or re-learn) fundamental movement and sport skills, but they do this following their injury (which can occur at any age), using new techniques and equipment in order to maximize the potential of their remaining physical capacities.
- ❑ Athletes who acquire their disabilities may pass through the various LTAD stages at significantly different ages and much more quickly than those with congenital disabilities, and faster or slower than one another following their injury – depending on a number of factors.

The period following acquisition of a disability is understandably one of transition and great change for most individuals. Some activities in which they were previously engaged may no longer be open to them in the same way, and they may not be aware of the many sporting and recreation activities that are available. The purpose of the Active Start/Awareness and FUNDamentals/First Contact stages is, therefore, to inform individuals of the range of activities in which they can participate and to provide ways for them to experience those activities.

Research indicates that sports may only have one opportunity to create a positive environment and recruit prospective athletes. For the individuals, it may be a big step to make the first approach to a sport. If they don't have a positive first experience, they may be lost to the sport - and to a healthy lifestyle.

LTAD considerations are essentially the same for athletes with congenital disabilities as they are for able-bodied athletes.





A.3.1 LTAD Progression Chart

Active Start / Awareness	Males and females 0 – 6 years (congenital disability) <i>or</i> <1.5 years since accident or onset (acquired disability)
FUNDamentals / First Contact	Males 6-9 and females 6-8 years (congenital disability) <i>or</i> About 2 years since accident or onset (acquired disability)
Learning to Train	Males 9-12 and females 8-11 years (congenital disability) <i>or</i> About 3 years since accident or onset (acquired disability)
Training to Train	Males 12-16 and females 11-15 years (congenital disability) <i>or</i> About 5 years since accident or onset (acquired disability)
Learning to Compete	Males 16-20(+/-) and females 15-19(+/-) years (congenital disability) <i>or</i> About 7 years since accident or onset (acquired disability)
Training to Compete	Males 20-23(+/-) and females 19-23(+/-) years (congenital disability) <i>or</i> About 8 years since accident or onset (acquired disability)
Training to Win	Males 23(+/-) and females 23(+/-) years (congenital disability) <i>or</i> >8 years after accident or onset (acquired disability) + >2 years of international racing experience
Active for Life	This stage can be entered at any age There is a better opportunity to be Active for Life if physical literacy is achieved before the Training to Train stage

Time can vary considerably depending on the individual's response to the acquired disability and their pre-disability athletic and/or skiing experience.





A.3.2 Active Start/Awareness

Able-Bodied or Congenital Disability	Acquired Disability
Ages: males and females 0 – 6 years (congenital disability)	< 1.5 years since accident or onset (acquired disability)

The goals outlined in this section supplement the goals and specific tasks for the corresponding LTAD stage in the able-bodied model for cross-country skiing.

The goals include:

Congenital Disabilities

- ☐ Emphasizing activities that are gender-neutral and inclusive to pro-actively encourage active living, because people with a disability tend to be less active than their peers.
- ☐ Integrated programming with CCC's Skill Development Program for children – the Bunnyrabbit Program.

Acquired Disabilities

- ☐ Developing a plan to make cross-country skiing known to prospective athletes.
- ☐ Educating individuals with a disability, and their families, about cross-country skiing opportunities that are available to them.
- ☐ Providing demonstrations and/or initiation opportunities in an appropriate setting, with qualified coaches.
- ☐ Introducing adaptive skiing equipment such as athletic sport prosthesis and sit-skis.
- ☐ Assisting individuals who wish to try out the sport to find ski equipment that is appropriate for them in size, weight and design.
- ☐ Encouraging CCC clubs to offer programs for athletes with a disability.
- ☐ Creating a positive sport environment.
- ☐ Encouraging individuals with a disability to try out a variety of sports.
- ☐ Improved collaboration between coaches and medical professionals in order to monitor skiers appropriately and ensure their safety.

Note: For individuals with a late-acquired disability, the Active Start/Awareness stage usually merges with the FUNDamentals/First Contact stage, as progress is normally rapid (depending on the individuals' stage of LTAD development in this or other sports pre-injury).





A.3.3 Fundamentals/First Contact

Able-Bodied or Congenital Disability	Acquired Disability
Ages: 6 to 9 years (males), 6 to 8 years (females)	About 2 years since accident or onset of disability

The goals outlined in this section supplement the goals and specific tasks for the corresponding LTAD stage in the able-bodied model for cross-country skiing.

The goals include:

Congenital Disabilities

- ☐ Integrated programming with CCC's Skill Development Program for children – the Jackrabbit Program.

Acquired Disabilities

- ☐ Educating athletes on the importance of having good mental skills to help them deal with their new challenges and develop themselves as athletes; introducing mental training techniques.
- ☐ Athletes successfully re-learning the FUNdamentals with their new/modified body (late-acquired disabilities). The length of this process is dependent on the individual.
- ☐ Assisting individuals to find ski equipment that is appropriate for them in size, weight and design (ongoing).
- ☐ Providing cross-country ski skill development opportunities in an appropriate setting, with qualified coaches.
- ☐ Athletes exploring a variety of sports before specializing.
- ☐ Improved collaboration between coaches and medical professionals in order to monitor the skier appropriately and ensure their safety.
- ☐ Encouraging interested individuals to become members of a CCC club.





A.3.4 Learning to Train

Able-Bodied or Congenital Disability	Acquired Disability
<p>Ages: 9 to 12 years (males) 8 to 11 years (females)</p> <p>Change in height cue is to be utilized as a guide to appropriate programming towards the end of this stage</p>	<p>About 3 years since accident or onset of disability</p>

The goals outlined in this section supplement the goals and specific tasks for the corresponding LTAD stage in the able-bodied model for cross-country skiing.

The goals include:

- ☐ Integrated programming with the CCC's Skill Development Program for children – the Track Attack Program.
- ☐ Building upper body strength to improve mobility, so that the individual can be involved in sport activities.
- ☐ Developing balanced antagonistic muscles (both sit-ski and standing skiers).
- ☐ Adapting dryland training techniques appropriately for skiers with a disability.
- ☐ Educating coaches and athletes about strapping.
- ☐ Increasing participation in complementary sports such as rowing, track and cycling.
- ☐ Incorporating NCCP CCI-L2T (On-Snow) Reference Material - including the appendix for coaching athletes with a disability.
- ☐ Reviewing Canadian Paralympic Committee website: www.paralympic.ca.

A.3.5 Active for Life

This stage can be entered at any age, but ideally it will follow the Learning to Train stage or take place when an athlete leaves the competitive stream.

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





A.3.6 Athlete Development Pathway Chart

Responsibility	LTAD Stages	Critical Success Factors	4 to 8 (9) years	(8) 9 to 11 (12) years	(11) 12 to 15 (16) years	(15) 16 to 19 (20) years	(19) 20 to 23 years	23 + years	Outcome
National Sport Organization (NSO)	Training to Win	<ul style="list-style-type: none">NCCP Certified coachesAthlete selection criteriaAthlete training programsSustainable competitionsInternational competitionSport science supportCustomized equipment							National Level Athlete
	Training to Compete								
	Learning to Compete								
Provincial/ Territorial Sport Organization (P/TSO)	Training to Train	<ul style="list-style-type: none">NCCP certified coachesAthlete selection criteriaAthlete training programsSustainable competitions							Provincial Level Athlete
	Learning to Train								
CLUB	FUNDAMENTALS/ First Contact	<ul style="list-style-type: none">NCCP trained coachesRegular training/ practicesSustainable leagues and competitionsDisability knowledge/ understanding							Club Level Athlete (Active for Life)
	Active Start/ Awareness								
Athlete enters the para-sport system									



**A.3.7 NCCP: AWAD Stream**

ATHLETE & COACH DEVELOPMENT PROGRESSION		
LTAD Stage	NCCP Context	AWAD Stream
Training to Win (T2W)	Competition Coaching: High Performance (CCHP)	TBD
Training to Compete (T2C)	Competition Coaching: Development Advanced (CCDAG – T2C)	TBD
Learning to Compete (L2C)	Competition Coaching: Development (CCD – L2C)	
Training to Train (T2T)	Competition Coaching: Introduction (CCI – T2T)	9) T2T (On-Snow) Workshop 8) T2T (Dryland) Workshop 7) CCI (Dryland) AWAD Module 6) CCI (On-Snow) AWAD Module 5) L2T (On-Snow) Workshop 4) L2T (Dryland) Workshop
Learning to Train (L2T)	Competition Coaching: Introduction (CCI – L2T)	
FUNDamentals/First Contact	Community Coaching: (CC)	3) CC AWAD Module 2) CC Workshop 1) ICC Workshop
Active Start/Awareness	Community Coaching: Introduction (ICC)	





A.3.8 Athlete Development Grid

LTAD Stage	Responsibility	Requirements	Key Objectives
Active Start / Awareness <ul style="list-style-type: none"> Demonstration and initiation into sport by Rehabilitation Centre, publicity, specific AWAD associations and special activities. Physical educators, physical therapists, friends, family, volunteers... 	<ul style="list-style-type: none"> Sport for Disabled Organizations (SDO). Assisted and customized delivery through CCC clubs and other key stakeholders. Centralized leadership and programming (i.e. Feel the Rush). 	<ul style="list-style-type: none"> A ski area that is accessible to athletes with a disability. Appropriate ski equipment. NCCP trained coaches for athletes with a disability. No previous experience. Medical practitioner support. Transportation to and from ski area. 	<ul style="list-style-type: none"> Making access to cross-country skiing known. Ensuring a positive environment. Encouraging participation in many sports. Athlete participation in Ski S'Kool Days, Club Open House Days. Athlete participation in introductory, club-delivered, skill development programs.
FUNDamentals / First Contact <ul style="list-style-type: none"> Initiation to cross-country skiing by other athletes, Rehabilitation Centres, word of mouth, publicity, SDOs and special activities. CCC community coaches, physical educators, physical therapists, friends, family, volunteers.... 	<ul style="list-style-type: none"> SDO. CCC Clubs. 	<ul style="list-style-type: none"> Accessible ski area. Appropriate ski equipment. NCCP trained coaches for athletes with a disability. Rehabilitation. Regular practices during snow season. Up to 100 hr/yr on snow. 0 to 1 year of experience (acquired disability). Medical practitioner support. Transportation to and from ski area. 	<ul style="list-style-type: none"> Ensuring a positive environment. Educating the athlete and their family on stages of development, other sports. Athlete participation in club-delivered skill development programs. Athlete participation in introductory competitions such as Ski Tournaments.





LTAD Stage	Responsibility	Requirements	Key Objectives
Learning to Train	<ul style="list-style-type: none">• CCC Clubs	<ul style="list-style-type: none">• Accessible ski area.• Appropriate ski equipment.• NCCP trained coaches for athletes with a disability.• Regular practices during snow season.• Up to 200 hr/yr (50 % on snow; 50% off-season).• 0 to 2 years of experience (acquired disability).• Medical practitioner support.• Transportation to and from dryland and on snow sport facilities.	<ul style="list-style-type: none">• A positive environment.• Athlete participation in intermediate-level, club-delivered skill development programs.• Athlete participation in Learn-to-Ski Clinics and entry level camps specifically for athletes with a disability .• Successfully introducing athletes to structured competition through observation and through participation in low-key competitions.





A.4 Considerations for Working with Athletes with a Disability

A.4.1 General Considerations

Persons with One-Sided Disabilities

Someone who has the use of one hand or arm only faces a number of challenges when using a typical building. For example, locked doors require the use of two hands. Bathtub and hand rails are left or right sided and may be situated on the “bad” side of the user. This disability is even more of a problem for those individuals with poor balance or poor muscle control who need to use their one good hand to maintain body stability.

Persons with disabilities on one side often have a problem in both their arm and leg. This condition makes them vulnerable to accidental falls because of their reduced balance and their inability to check imbalances. Additional body support is needed in situations where the individual's posture is unstable or changing – for example, when using stairs or toilet facilities. In these cases, good footing is needed at all times.

Persons in a Wheelchair

There is a wide variation in the physical capabilities of persons who use wheelchairs. Some individuals have weak arms and can't propel themselves over floor surfaces such as soft carpets or slight inclines. Others have strong arms and can stand for short periods of time, given adequate grab rails.

The seated position of the person in a wheelchair creates an eye-level and an area of reach that differs greatly from that of a standing, able-bodied person. Everything that must be reached, such as shelving, notices or switches, and everything that must be seen into or through, such as windows, mirrors and drawers, needs to be lower than those for a standing person.

Someone using a wheelchair requires considerably more space to manoeuvre than an able-bodied person does (see Figure A.1 & A.2). Moreover they are limited to a smaller number of acceptable floor conditions. A standard wheelchair is 24 inches wide, 42 inches long and requires a circle 60 inches in diameter in order to turn completely around. The most frustrating and handicapping situations experienced by those in wheelchairs involve mobility, and the barriers created by steps, stairs, poor flooring surfaces, narrow doorways and heavy doors. A wheelchair can navigate a 76 cm door with ease. However doors are often 26 inches [66 cm] wide and a wheelchair can barely squeak through.

People in wheelchairs can often use the bathroom facilities even if they aren't designed to accommodate wheelchairs. However, negotiating the doorway in order to reach the facility is frequently problematic as the entrance way can be as narrow as 24 inches [61 cm].

Often persons that use wheelchairs lack feeling in their legs, and they can easily hurt themselves by leaning against a hot radiator or bumping into sharp objects.





Figure A.1: Space for a 3-point turn

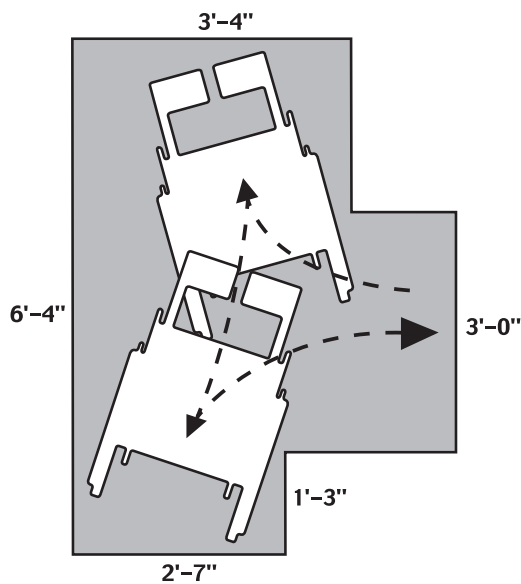
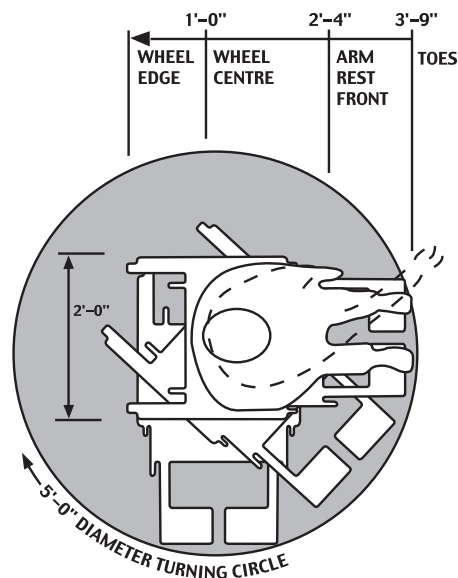


Figure A.2: Space required for complete turn



Persons who are Visually Impaired

- ☐ Speak directly to the individual. Don't ask their spouse or guide if they want "cream in their coffee" - ask them. They will not have problems with ordinary table skills and can manage without help. What they will want to know is who is in the room with them. Speak to them when you enter a room they are in, and when they are entering a room, introduce them to the others in that room. Don't avoid words like "see". They will use these words too.
- ☐ People who are visually impaired may use a long white cane or dog-guide to walk independently, or they may ask to take your arm. Let them decide if they want your help. Don't grab their arm; rather, let them take yours. They will keep a half step behind to anticipate curbs and steps. In many places, the law requires drivers to yield the right of way when they see the white cane.
- ☐ A partially open door to a room, cabinet or car can be a hazard. Be alert to this risk.
- ☐ Don't mention the "wonderful compensations" of visual impairment. Their sense of smell, touch and hearing didn't improve when they lost their sight. They rely on these senses more and therefore may get more information through them, but that's all. They will likely discuss their blindness with you and answer questions if you're curious - but this is an old story to them. They have as many other interests as you do. They are just a person who happens to be visually impaired.

Functional Facilities

The basic requirements for a functional facility for the population at large are accessibility and usability: everyone should be able to reach a desired area within a building and once there they should be able to use the facilities provided. For a cross-country ski facility, accessibility involves not only movement within the building but also movement from the street or parking area through the building entrance to the stadium and ski trails.





A building that provides wheelchair access is one that is accessible to most people who are disabled but mobile.

Major Problem Areas

Parking lots, building entrances and toilet facilities are the functional areas in which persons with a disability seem to have the greatest problems. Specific areas of concern include the following:

- ☐ Steps, narrow doorways and doors that are positioned too close together for wheelchair access.
- ☐ Toilet facilities that are difficult for a person in a wheelchair to access due to:
 - ✓ insufficient space (particularly in the stalls);
 - ✓ fixtures that are designed for persons in a standing position; and
 - ✓ doorways that are too narrow.
- ☐ Taps and doors: arm amputees (especially double arm amputees) often have difficulty turning taps and opening doors.
- ☐ Snow piled at the edge of a parking lot: the snow piles can prevent persons with a disability from reaching the ski area/ski trail without assistance.

A.4.2 Considerations Specific to Cross-Country Skiing

Getting a Program Started

- ☐ Ensure that the type of disability and level of ability of each participant in your program are known before activities get underway.
 - ✓ Ask the parents / guardian to meet with their family doctor to ensure the individual is able to ski, and to fill in a comprehensive medical form provided by your club.
 - ✓ Undertake an initial assessment prior to the ski season will also allow you enough time to prepare or modify equipment to meet the needs of the individual skier.
- ☐ Keep a copy of the medical record at the ski area if the skier is on special medications or is subject to seizures. This will be useful to the paramedics in the event of an incident.
- ☐ If necessary, prepare novice skiers with a pre-ski season conditioning program so that they can participate comfortably in the on-snow practice sessions.
- ☐ Meet your skiers at the same location for every practice session and be prepared to assist with their equipment if needed.

The Teaching Area

Introduction to skiing should begin on a flat, well packed snow surface.

Ideally, the ski facility in your community will be wheelchair accessible. If not it can usually be accessed with some assistance. If a person with a disability needs assistance from the parking





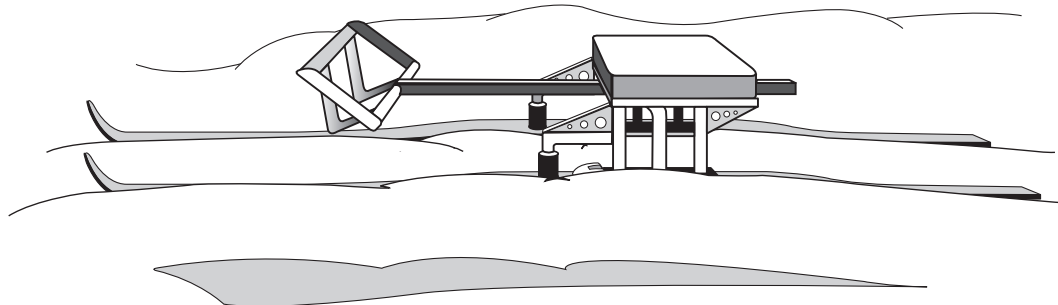
lot to the area where they will be skiing, you can use a rope or strap that is approximately 2.2 metres long to pull them.

Beginner sit-skiers will not be able to ski more than one kilometre without assistance. Most trails will be skiable as long as there is assistance to push them on the uphill and brake them on the downhill.

Practice Session Tips

- ☐ Determine the abilities of the participants without isolating them or singling them out.
- ☐ Be sensitive to the individual's needs and abilities, and gear your expectations accordingly.
- ☐ Focus on fun and participation!
- ☐ Use common sense - don't put the athlete at risk of physical injury or exhaustion.
- ☐ Encourage independence, and focus on abilities, not disabilities.
- ☐ Encourage and facilitate two-way communication appropriate to the capability of the individual participant.
- ☐ Seek additional human resources if you need to modify equipment or technique.

Figure A.3



Persons Requiring Sit-skis

The sit-ski (Figure A.3) is the cross-country skiing version of a wheelchair. In order to properly address the particular needs of a person who normally uses a wheelchair, you will need to know and understand the nature of the person's disability. For example, the person using the wheelchair may not be paralysed - they may have a high leg amputation or angulated fractures and be unable to wear a prosthetic.

To better understand the nature of the disability, ask yourself the following questions: (1) can the individual move one or both legs, and (2) do they have the use of their abdominal muscles?

1. If the individual can move his/her legs, then he/she will be able to balance and twist his/her body with strength. In this case you will be able to teach the individual Double Poling directly. Even the bending of the knees is the same as for an able-bodied skier.





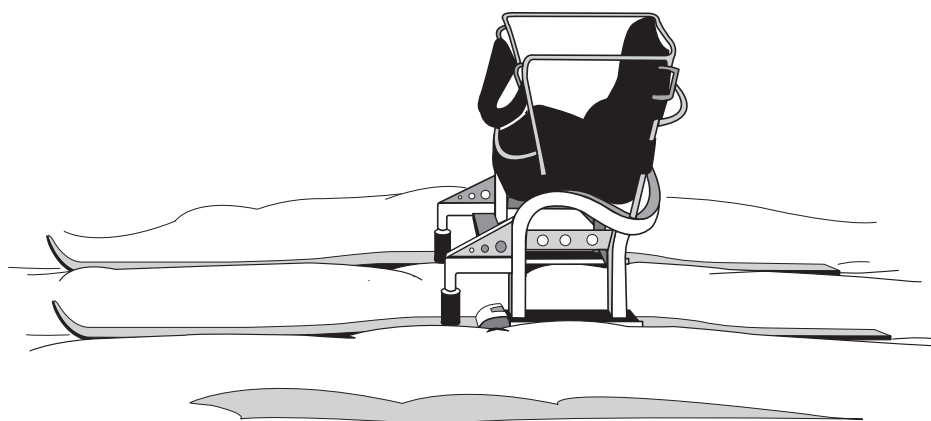
2. If the individual cannot move his/her legs and cannot control his/her abdominal muscles, then he/she will have the greatest challenge and require the most adaptation to his/her technique in order to ski. A high level break or paralysis causes both forward-backward and side-to-side instability. These individuals are unable to regain a vertical position once they have flopped forward onto their knees, so mechanical assistance is needed to keep them upright. A wide (ten centimetre) elastic strap fastened to the back and seat of the sit-ski seat can provide support from the knees to just below mid-chest height.

Note: an athlete in a sit-ski is confined to poling (either Double Poling or Off-set Poling). Guidelines for determining pole length are the same as for a standing skier. Side-to-side instability is controlled by having a sit-ski seat which hugs the skier and is quite rigid. This rigidity can be accomplished by having a sled with high sides and straps.

After several years in a wheelchair, individuals with a disability may lack flexibility. For example, they may not be able to touch their hands behind their back. Because of this their range of flexibility and their ability to balance with their arms outstretched should both be tested. Flexibility exercises should therefore be part of their lesson plan from the beginning. Massage therapy is usually recommended if the person intends to become proficient and have a full range of motion.

The first time out you should have an assistant to help you move the person from the wheelchair to the sit-ski. Most people with a disability do not like to be lifted, so they should be asked first to see if they would like assistance. If they wish to be lifted, they should be asked to explain how they would like the manoeuvre done, as they will have done this many times before. At all times you should be careful of your own back while lifting, holding or righting sit -skiers.

Figure A.4



Teaching Tips:

- ☐ The arms provide the only power. For beginning skiers, they will collapse onto the chest to compensate for the lack of strength. With good instruction, practice and specific training to increase strength in the arms, shoulders and abdominal muscles (if useable), the sit-skier will be able to achieve the same power that able-bodied skiers achieve.
- ☐ Sit-skiers can only slow or stop their sleds by digging in the hand-grip ends of their poles (preferred braking method) or the tips (basket) of the poles. Beginner skiers should therefore have their sleds adjusted so that they can reach the ground easily. Alternatively, they can be tethered when going downhill, with you or an assistant coach snowplowing behind the sit-ski.





- ❑ Cornering on downhill turns is a matter of balance, body position and braking. Skiers with a strong upper body will be able to use their outside pole to push quickly, in a jabbing motion, to force the sit-ski tips inside the fall line and the ski tails to the outside. Good balance is needed to keep the sit-skier upright and to avoid the tendency to jerk as the skis grab (in the same way that able-bodied skiers need to learn to feather or side slip with parallel skiing).

Persons with Leg Amputations or Weak Legs

- ❑ Double Poling is the easiest technique for an amputee to learn. The One-Step Double Pole technique is easily learned by the leg amputee skier because the leg is frequently used in a locked position. The arms provide most of the power. The arms will collapse onto the chest to compensate for the lack of leg power. With practice and training, an increased strength in abdominal muscles and a powerful leg kick can be developed.
- ❑ In general, athletes with a disability will start skiing with the prosthetic leg bent and the other leg stiff. The body will be in an upright position with no weight shift from leg to leg. Occasionally, the prosthetic leg will collapse as the prosthetic joints don't lock. Weight transfer with the foot going ahead of the other can be achieved by the amputee skier. The prosthetic leg can be pushed ahead of the other foot. A skier with a prosthetic can step around on curves of fairly steep terrain without any problems. The Step Turn allows control of speed and direction without use of the Snowplow technique. Compared to able-bodied skiers, the body position is more upright to enable the knee to be locked while stepping.
- ❑ Disabled skiers will normally begin to perform skating techniques with their feet wide apart in order to lock the leg. With the feet wide apart in this way, the skis move towards the trail edge rather than down the track. In addition, there is a lack of weight transfer and the skis are providing very little glide on either foot. Most of the skier's momentum is supplied by the lower arms. This expends a lot of energy unnecessarily. With instruction and practice, skating techniques can be performed with weight transfer so that both feet move underneath the body. The gliding motion can be graceful without strain.
- ❑ Steep hills will force amputee skiers to adopt a more upright than is desirable. The need to lock the leg will cause an ataxic gait pattern and upright body position. Technique modification should occur such that the motion of skiers with disability is fluid and energy-conserving. Whenever the skiers become tired or challenged with unfamiliar steepness in terrain, a reversion to the gait pattern may occur.

Persons with Visual Impairment

Teaching Tips:

- ❑ First determine the extent of an individual's visual impairment as this will affect your teaching methods.
- ❑ Persons with visual impairments may initially have issues with balance, timing and the judgement of speed. However, with practice, they can overcome these problems.
- ❑ A visually impaired skier should have a guide who skis where they specify - either in front, back or side.





- ☐ Specific verbal cues about the direction and terrain are essential. Using clock references - for example, "Turn at 2 o'clock" - are especially helpful.
- ☐ Physical assistance (see illustration at right) is important initially because it helps develop the correct stance. For example - touching the skier's arm to help him/her feel proper form and motion. Assistance can gradually be reduced to verbal instructions.
- ☐ Be prepared before starting down a hill. Ensure that both the skier's body and skis are positioned correctly!
- ☐ Use standard progressions when teaching, and pace your teaching according to the individual skier's capacities.
- ☐ Be alert to the skier's needs - cold, fatigue, etc.
- ☐ Give lots of encouragement.

Figure A.5



The following conventions are in place for visually impaired skiers, their coaches and guides:

- ☐ The "Trail Safety" guidelines for cross-country skiing (section 6.4 of the Introduction to Community Coaching Reference Material).
- ☐ A skier with no sight should ski in the right-hand track at all times.
- ☐ When skiing on narrow trails, the coach/guide needs to warn their skiers of overhanging branches.
- ☐ Avoid passing on downhills.
- ☐ If snowplowing down a long hill, the coach/guide should explain to their skiers when and how much to slow down.
- ☐ If a skier falls, the coach/guide should encourage him/her to get up quickly to minimize the hazard on the trail. They shouldn't hesitate to help a skier get out of harm's way!
- ☐ When coaching/guiding, you should take the time to describe the surroundings and the terrain. When necessary, stop completely, step out of the track and chat for a few minutes.
- ☐ Use brief commands as follows:

Situation	Command
In an emergency or if your skier is headed for trouble	SIT DOWN!





Situation	Command
On the flats, if a turn is required	GENTLE OR SHARP LEFT/RIGHT TURN
After completing the turn	STRAIGHT AHEAD
Warnings regarding dips or bumps in terrain	DIP COMING UP - NOW! or HUMP COMING UP - NOW!
If part of track is wiped out, but other track is still good	BAD TRACK - FOLLOW LEFT (OR RIGHT) SKI
If one ski is out of the track (left ski in right track or vice-versa)	STEP RIGHT or STEP LEFT
In ski lingo, hills are slack or steep; long or short; uphill or downhill	LONG STEEP UPHILL or SHORT GENTLE DOWNHILL
For a long down hill run with a left turn or right turn	DOWN HILL - TUCK – NOW! or LEFT OR RIGHT TURN – NOW!
The passing command is	TRACK!

Persons with Hearing Impairments

Teaching Tips:

- ☐ Hearing impairments don't normally interfere significantly with a person's ability to cross-country ski.
- ☐ Persons with severe hearing impairments are sight and touch oriented. When necessary, you can gain their attention by using a specific arm or hand gesture or by touching an arm.
- ☐ Some skiers with a hearing impairment may experience problems with their balance. In this case you should advise them that tilting their head back can totally disrupt their equilibrium and cause severe dizziness and nausea.
- ☐ Skiers with hearing impairments may not respond to noises in the environment around them such as the sounds other skiers make (for instance, yelling "Track!").
- ☐ On public ski trails, including competitions, a hearing impaired skier may choose to identify themselves as such by wearing a bib. The bib will alert others to their needs.
- ☐ Your teaching effectiveness will improve if you are assisted by someone trained in sign language.





- ☐ Demonstrate clearly when teaching about technique, equipment or waxing.
- ☐ Always face the skier you are teaching and speak as clearly as possible. Many individuals with a disability can lip read.

Persons with Especially Poor Co-ordination and Balance

Teaching Tips:

- ☐ Use a shorter, wider ski.
- ☐ Use progressions, and guide participants through them at a slower pace.
- ☐ Give specific, clear instructions – your skiers may have poor body awareness.
- ☐ Teach hill maneuvers on a short, slight incline.
- ☐ Give your skiers lots of encouragement.





A.5 Modified Games

Description	Effect
Lighter, softer, larger ball	Slows game and allows more time to prepare for and execute skill
Shorter, lighter, striking implement	Allows greater control for weaker and less skilled skiers
Larger striking implement, larger goal or target area	Reduces number of misses and increases opportunity for success
Lighter, softer, smaller balls	More easily caught and retained
Bean bags substituted for balls	Not as elusive as balls and may be easier to throw for skiers with poor hand function
Partially deflated balls for dribbling and kicking	Slows movement of the ball and allows more time to prepare and execute the skill activities

Description	Effect
Skills such as: rolling a ball off a lap for kicking, striking a soccer ball with a floor hockey stick instead of the foot	Increases success and opportunity to be involved in game play
Tasks simplified; for example, drop and catch the ball rather than bounce it consecutively	Increases success and opportunity to be involved in class activity
Props used to enhance skills; for example, a towel extends the reach for tag games	Increases level of success and motivation for participation

Equipment Modifications

☐ Balls:

- ✓ Lighter balls...beach or sponge.
- ✓ Larger balls...monster balls.
- ✓ Balls with tails...foxtails, balls with ribbons attached.
- ✓ Suspend the balls...beach, sponge or cosom balls.
- ✓ Tether the balls...to a walker or a chair.





- ✓ Use brightly coloured balls.
- ✓ Under-inflate the balls.
- ✓ Use scarves, bean bags or koosh balls as alternatives.

❑ **Targets:**

- ✓ Use larger targets or goals.
- ✓ Move targets closer.
- ✓ Raise or lower the target.
- ✓ Use targets with an auditory cue.





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Central Cross Country Ski Association, *Adaptive Nordic Ski Instruction Manual - CXC Adaptive Cross Country Skiing*, 2009-2010.

Active Living Alliance for Canadians with a Disability, *Words with Dignity*.

To learn more about the following sport organizations, visit:

Biathlon Canada: www.biathloncanada.ca

Canadian Paralympic Committee: www.paralympic.ca

Canadian Blind Sports Association: www.canadianblindsports.org

Canadian Cerebral Palsy Sports Association: www.ccpsa.ca

Canadian Deaf Sports Association: www.assc-cdsa.com

International Paralympic Committee: www.paralympic.org

Special Olympics Canada: www.specialolympics.ca





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