NO ACCIDENTAL CHAMPIONS

LONG-TERM ATHLETE DEVELOPMENT FOR ATHLETES WITH DISABILITIES

2nd EDITION

Canadian Sport for Life

A SUPPLEMENT TO CANADIAN SPORT FOR LIFE

Photo: Susan Hughes | Courtesy of Disabled Skiers Association of BC

table of contents

Donovan Tildesley, Swimming
Beijing 2008

Photo: Benoît Pelosse | Courtesy of Canadian Paralympic Committee

LTAD
For Athletes with Disabilities

Approximately 14% of Canadians have a sensory, intellectual or physical disability,[1] and some of these persons may have more than one disability. **No Accidental Champions** describes some of the opportunities and challenges that face persons with permanent disabilities in pursuing sport and physical activity, and how the Canadian sport system can best accommodate their needs for increased activity and greater achievement through Long-Term Athlete Development (LTAD). Not all individuals with disability will pursue competition; however, this should not exclude them from opportunities to learn sport skills and become active for life.

Regardless of their competitive or recreational aims, athletes with disabilities are first and foremost athletes. For this reason almost all of the principles behind Canada's LTAD model for able-bodied athletes are applicable to athletes with disabilities. If you have not already read the resource paper Canadian Sport for Life (CS4L) and become familiarized with the able-bodied LTAD model, you may wish to read it first. No Accidental Champions builds upon this document and addresses additional or unique factors that need to be considered by athletes, coaches, parents, administrators, and health professionals in the delivery of sport and physical activity specifically for athletes with disabilities.

[1] Statistics Canada. Participation and Activity Limitation Survey 2006: Tables. Ottawa: Statistics Canada, 2007 (Cat. No. 89-628-XIE - No. 003).

Promoting Health & Excellence

To promote optimum health and quality of life, it is critical that all Canadians, with or without a disability, fully engage in physical activity. In light of documented declines in physical activity and increasing rates of obesity, depression, and related health issues both nationally and globally, CS4L and LTAD fulfil the need to promote the well-being of all Canadians through physical activity and sport. CS4L and LTAD also support the United Nations Convention on the Rights of Persons with Disabilities, which stipulates governments will promote sport and recreational activity for persons with disabilities.[2]

Through LTAD, Canadians with a disability might train to achieve excellence in high performance sport, or they might choose to pursue the many benefits that come with being active in physical activity. The purpose of LTAD is to support each person's aims by providing a suitable and recognizable pathway for them to engage in activity and pursue their goals using logical guidelines for training, competition, and recovery.

[2] UN Convention on the Rights of Persons with Disabilities (Article 30).

Jody Barber, Para Triathlete and 2010 Paralympian, Cross-Country Ski

Opportunities for Athletes with Disabilities

In the course of recent decades, a vast array of sports and physical activities traditionally available only to able-bodied athletes have become accessible to persons with disabilities at both the recreational and competitive levels (see panel below). Some individuals may have been born with a congenital disability, while others may have acquired their disabilities later in life. Regardless of the origin of their ability or disability, Canadians who pursue sport and physical activity deserve to have a pathway to help them achieve their goals, whether they pursue excellence and high performance or simply aim to be active for life.

Drivers for Change

Canada has been recognized for achieving outstanding success in Paralympic sport, Special Olympics, Deaflympics, and other sports for athletes with disabilities, but there are concerns that systemic factors continue to limit access to sport and physical activity for persons with disabilities. There are also concerns that Canada's pool of high-performance athletes is not being replenished as our current athletes age. By creating an LTAD pathway for athletes with disabilities, we can help to ensure the vitality of sport and activity for all Canadians with disabilities.

Lauren Woolstencroft,
Alpine Ski
Vancouver 2010

HIGH PERFORMANCE COMPETITIONS FOR ATHLETES WITH DISABILITIES

The Paralympic Games provide competition opportunities for athletes with physical disabilities and visual impairment, while the Special Olympics Games serves a broad spectrum of persons with an intellectual disability and the Deaflympics provide competition for persons who are deaf. (Some events for athletes with intellectual disabilities are being reintroduced at the 2012 Paralympic Summer Games.)

The Paralympic Games are held immediately following the Olympic Games, and there are also regional Parapan American Games. The Paralympic Summer Games include archery, athletics, boccia, cycling, equestrian, soccer five- and seven-a-side, goalball, judo, powerlifting, rowing, sailing, shooting, swimming, table tennis, volleyball, wheelchair basketball, wheelchair fencing, wheelchair rugby, wheelchair tennis, and in 2016, canoe and triathlon. The Paralympic Winter Games include alpine skiing, ice sledge hockey, cross-country skiing, biathlon, and wheelchair curling. There are some sports specific to only one disability such as goalball for athletes who are blind or visually impaired.

The Special Olympics Summer Games include athletics, aquatics, five-pin and ten-pin bowling, soccer five-a-side, powerlifting, rhythmic gymnastics, and softball. Winter Games events include alpine and cross-country skiing, curling, figure skating, floor hockey, snowshoeing, and speed skating.

The Summer Deaflympics includes athletics, badminton, basketball, beach volleyball, bowling, road cycling, soccer, judo, karate, mountain biking, orienteering, shooting, swimming, table tennis, taekwondo, tennis, volleyball, freestyle wrestling, and Greco-Roman wrestling. The Winter Deaflympics features alpine skiing, cross country skiing, curling, ice hockey, and snowboarding.

Photo: Kevin Bogetti-Smith | Courtesy of Canadian Paralympic Committee

2010 Paralympic Games Opening Ceremonies
Photo: John Sims | Courtesy of Canadian Paralympic Committee

Carrying the Torch

Sport and physical activity for athletes with disabilities is organized by a variety of national, provincial, territorial and local groups. In many cases, a single national sport organization (NSO) may be the governing body for both the able-bodied and athletes with disabilities variants of one particular sport. At the same time, Disability Sport Organizations (DSO) may represent several sports and activities in relation to a particular disability. For example, Special Olympics Canada provides programming in a variety of sports and activities for athletes with an intellectual disability, while the Canadian Deaf Sports Association delivers an array of programming for deaf or hard of hearing athletes.

Whatever their affiliation or primary interest group, and despite the diversity of needs represented by athletes with sensory, intellectual, and physical disabilities, NSOs and DSOs can ensure continued and expanded success in their programming by considering and incorporating LTAD principles. At the same time, the Canadian sport system at large can also benefit by NSOs and DSOs sharing their expertise with each other and with participants and stakeholders, including but not limited to persons with disabilities, parents, coaches, administrators, health professionals, sport scientists, and volunteers.

HIGH PERFORMANCE SPORT FOR ATHLETES WITH DISABILITIES

Persons with disabilities engage in sport for the same wide range of reasons as the general population, and some of them aspire to perform at the highest levels of international competition. This is true regardless of the nature of the disability, and high performance opportunities exist for athletes with mobility, sensory or intellectual disabilities.

When you see a one-legged high jumper clear a bar that he or she can walk under without stooping, or a blind runner winning the 100m in 10.6 seconds, you know that disability sport is truly high performance.

Reaching the pinnacle of high performance sport requires years of high quality training, good competition, great coaching, and, when necessary, world class equipment. Top athletes with disabilities train as long and as hard as athletes in mainstream sport, make the same sacrifices, and require the same level of support from coaches, officials, medical teams and sport scientists.

The Paralympic Games (parallel to the Olympic Games), the Deaflympics, and a multitude of sport-specific World Championships provide opportunities for athletes with any disability, be it physical, sensory or intellectual. These competitions show how far persons with disabilities have come in sport since the pioneering efforts to use sport to improve the lives of injured military personnel 65 years ago.

The Canadian LTAD Model

Several aims and considerations guide the LTAD model:

1. LTAD is based on the physical, mental, emotional, social, and cognitive development of children, adolescents and adults. Each stage reflects a different point in athlete development.
2. LTAD ensures physical literacy[3] upon which excellence can be built, and builds that physical literacy in all children, from early childhood to late adolescence, by promoting quality daily physical activity in schools and a common approach to developing physical abilities through community recreation and elite sport programs. It also recognizes the need to involve all Canadians in LTAD, regardless of ability.
3. LTAD ensures that optimal training, competition, and recovery programs are provided throughout an athlete's career.
4. LTAD provides an optimal competition structure for the various stages of an athlete's development.
5. LTAD has an impact on the entire sport continuum, including participants, parents, coaches, schools, clubs, community recreation programs, provincial sport organizations (PSOs), territorial sport organizations (TSOs), NSOs, multi-sport service organizations (MSOs), sport science specialists, municipalities, and several government ministries and departments at the federal and provincial/territorial levels (particularly but not exclusively in the portfolios of health and education).
6. LTAD integrates elite sport, community sport and recreation, scholastic sport, and physical education in schools.
7. LTAD is 'Made in Canada', recognizing international best practices, research, and normative data.
8. LTAD is consistent with the Canadian Sport Policy and reflects a commitment to contribute to the achievement of each.
9. LTAD promotes a healthy, physically-literate nation whose citizens participate in lifelong physical activity.

[3] *Physical literacy refers to competency in basic human movements, fundamental motor skills and fundamental sport skills.*

Photo courtesy of Special Olympics Canada

Seven Main Stages of LTAD

As they mature to adulthood, children and youth pass through a series of developmental stages that affect the development of their physical, mental, cognitive and emotional capacities they use to participate in physical activity and sport. This fact holds true for persons with and without disabilities, though the rate and extent of development may vary depending on the type of disability.

A brief overview of the seven main stages of LTAD[4] is presented below (Figure 1). The first three stages, plus the Active for Life stage, are intended for all individuals who participate in physical activity and represent the process for acquiring basic physical literacy and engaging in lifelong physical activity for health and enjoyment. The full seven stages represent a complete pathway for athletes who choose to pursue high performance. Two additional stages are identified for athletes with disabilities (see Figure 2).

Figure 1 shows the typical age ranges when individuals who are able-bodied pass through each stage. Individuals with disabilities, whether congenital or acquired, may pass through these stages at significantly different ages depending on when they first become active or acquire their disability. They may also pass through the stages at vastly different rates depending on the nature of their disabilities. For example, some individuals with an intellectual disability might move from the Learn to Train stage directly to the Active for Life stage, or they might stay in the Learn to Train stage for many years. Individuals with acquired disabilities might pass through some stages more than once – first as a person without a disability and later as a person with a disability.

Figure 1: Seven Stages of LTAD
Athletes with disabilities pass through the same stages as able-bodied athletes presented below, but chronological ages and rates of progress may differ depending on the type and degree of disability.

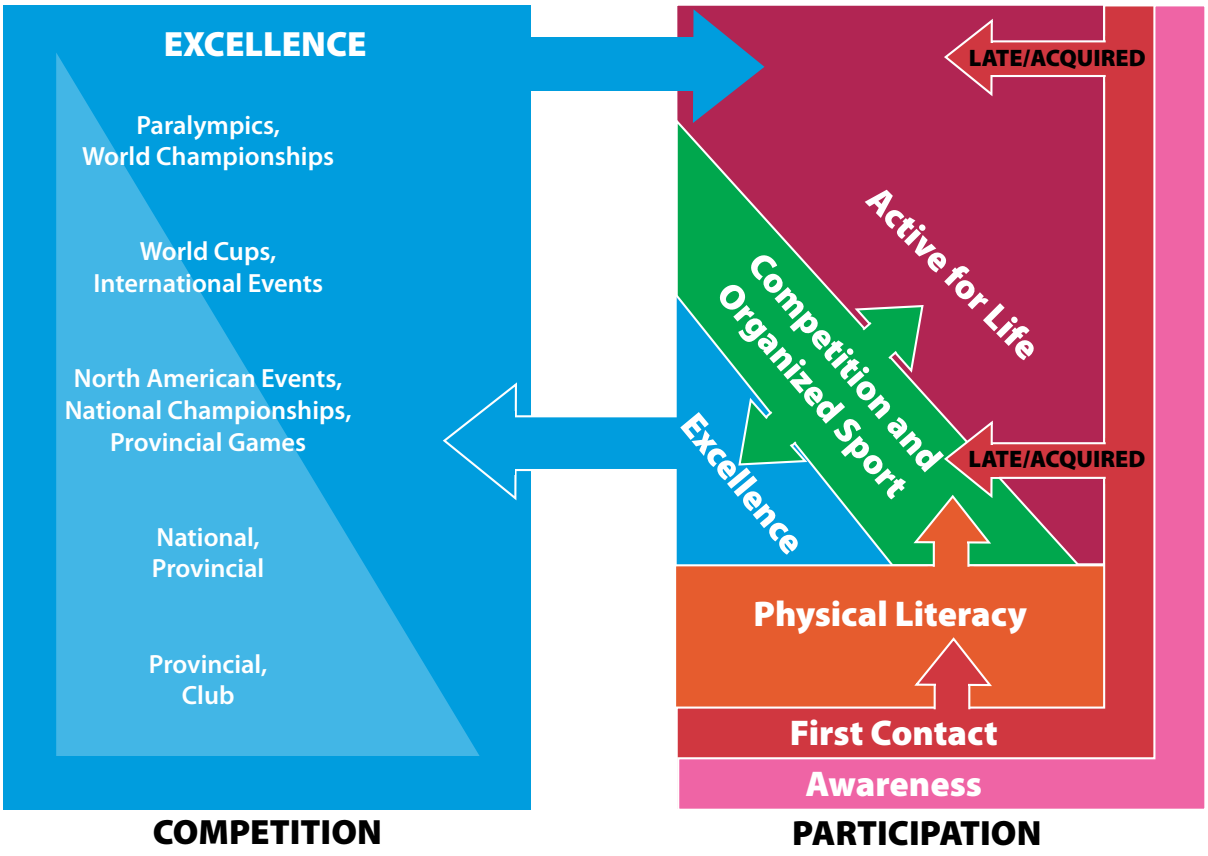
ACTIVE START	**Males and Females 0 – 6**	**Learn FUNdamental movements and link them together in play**
FUNDAMENTALS	**Males 6 – 9 Females 6 – 8**	**Learn all FUNdamental movement skills and build overall motor skills**
LEARN TO TRAIN	**Males 9 – 12 Females 8 – 11**	**Learn overall sport skills**
TRAIN TO TRAIN	**Males 12 – 16 Females 11 – 15**	**Build aerobic base, develop speed and strength, further develop and consolidate sport-specific skills**
TRAIN TO COMPETE	**Males 16 – 23 +/- Females 15 – 21 +/-**	**Optimize fitness preparation and sport-, individual-, and position-specific skills as well as performance**
TRAIN TO WIN	**Males 19 +/- Females 18 +/-**	**Focus on podium performances**
ACTIVE FOR LIFE	**Enter at any age**	**Smooth transition from an athlete's competitive career to a lifelong physical activity and participation in sport**

[4] *For additional details, please refer to the resource paper Canadian Sport for Life (2005).*

Two more stages:
Awareness and First Contact

Athletes with disabilities require two new LTAD stages in addition to the seven stages described for able-bodied athletes in Figure 1. These stages are Awareness and First Contact. They are particularly important for individuals with an acquired disability who, prior to injury or illness, may have had no contact with, and no knowledge of, sport and physical activity for persons with a disability. These additional stages are shown in Figure 2 below.

Figure 2: The Canadian Sport for Life No Accidental Champions Model
Awareness and First Contact programs are used to inform and engage potential athletes at all ages as disabilities may be congenital or acquired.



For additional details, please refer to the resource paper Canadian Sport for Life (2005).

SPECIAL OLYMPICS AND INAS

For athletes with an intellectual disability, there are two major international organizations – Special Olympics International and INAS, the International Federation for athletes with an intellectual disability. Both make outstanding contributions, but they focus on different types of sport opportunity for those they serve.

Special Olympics is dedicated to enriching the lives of people with an intellectual disability through sport. It organizes its own local, national and international competitions, including the massive World Summer and Winter Games which are held in the year prior to the Olympic and Paralympic Games. In 2011 the World Games are being held in Athens, Greece and more than 7,000 athletes from more than 180 countries will take part.

INAS is the organization for para-athletes with an intellectual disability, and it is the international sport organization representing athletes with an intellectual disability within the Paralympic movement and the Paralympic Games. Within the Paralympic Games, INAS is focused on advancing high performance sport opportunities for athletes with an intellectual disability.

Awareness Stage

Opportunities for persons with disabilities to participate in sport and physical activity are not always well known to the general public. The purpose of the Awareness stage is to inform the general public and prospective athletes with disabilities of the range of opportunities available. To this end, sport and recreation organizations need to develop awareness plans to make their offerings and resources known.

In the case of individuals who acquire a disability, the period following acquisition of a disability is generally one of great change and transition. Some of their previous physical activities may no longer be open to them in the same form, and they may not be aware of the many sporting and physical activities that are available to persons with disabilities. Awareness plans and effective communication can help to ease this transition; these plans can also foster awareness among parents and people who work with persons with disabilities, such as health care professionals and teachers.

The Honourable Mary McNeil prepares for the tap off between Ross MacDonald and Janet McLachlan on International Paralympic Day in Vancouver.

First Contact Stage

The purpose of the First Contact stage is to ensure persons with disabilities have a positive first experience of an activity and remain engaged. Accordingly, organizations need to train coaches and develop programs that provide suitable orientation for prospective athletes with disabilities, helping them to feel confident and comfortable in their surroundings, and welcome among peers and training personnel.

Giving Back

At the end of their careers, athletes with disabilities who retire from competition should be encouraged to remain involved in the sport as coaches, program volunteers, fundraisers, mentors, or officials. Through their experiences in sport and physical activity for athletes with disabilities, they can act as role models who provide a wealth of information, expertise and guidance to upcoming athletes.

Photo: Brenda Chinn | Courtesy of Canadian Sport Centre Pacific

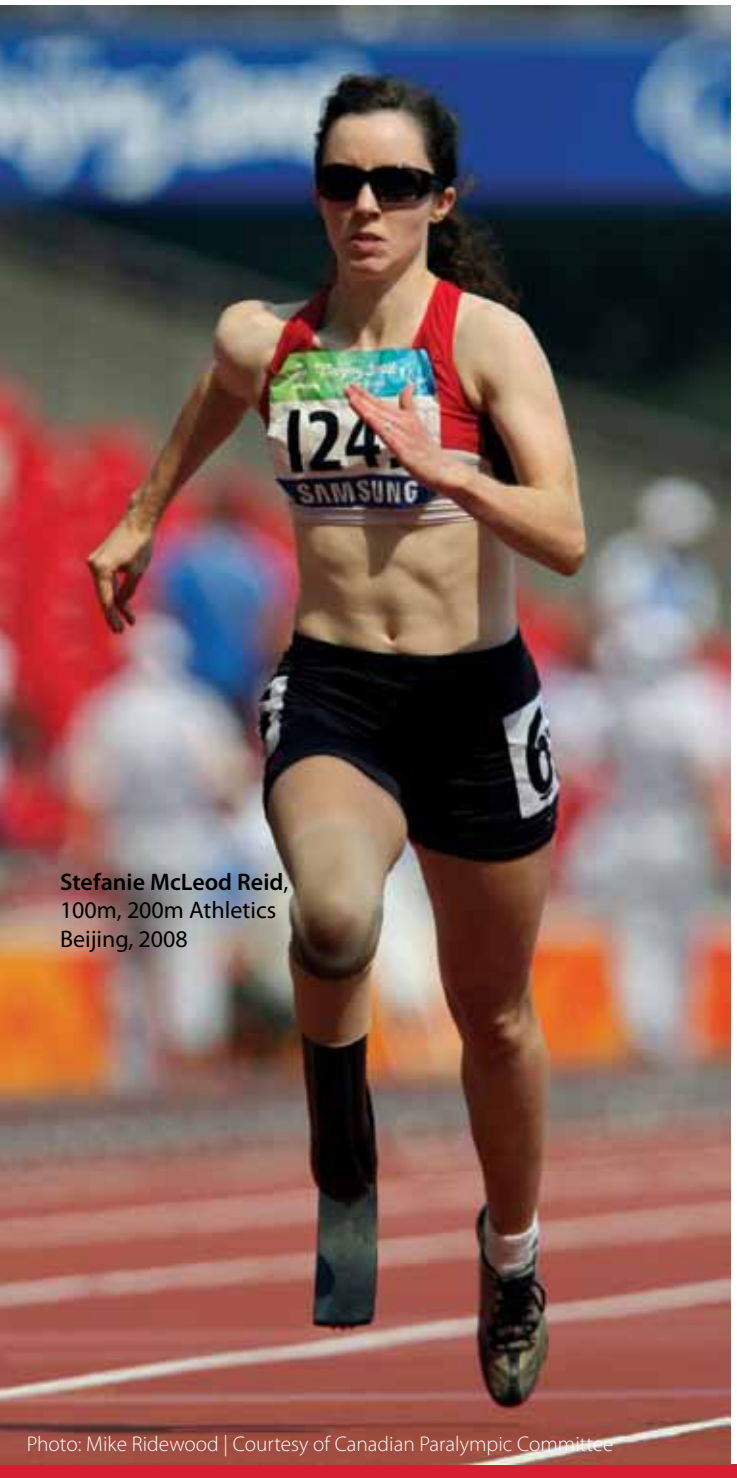
"I have gone through all the same stages of development as Canada's other elite athletes. From training hard as a teenager, through learning to compete on the international stage, to standing on the Paralympic podium, my development has taken time and perseverance."

Chantal Petitclerc
Paralympic Champion

Photo: Benoit Pelosse | Courtesy of Canadian Paralympic Committee

The 10 Key Factors

Influencing LTAD for Athletes with Disabilities



Stefanie McLeod Reid,
100m, 200m Athletics
Beijing, 2008

Photo: Mike Ridewood | Courtesy of Canadian Paralympic Committee

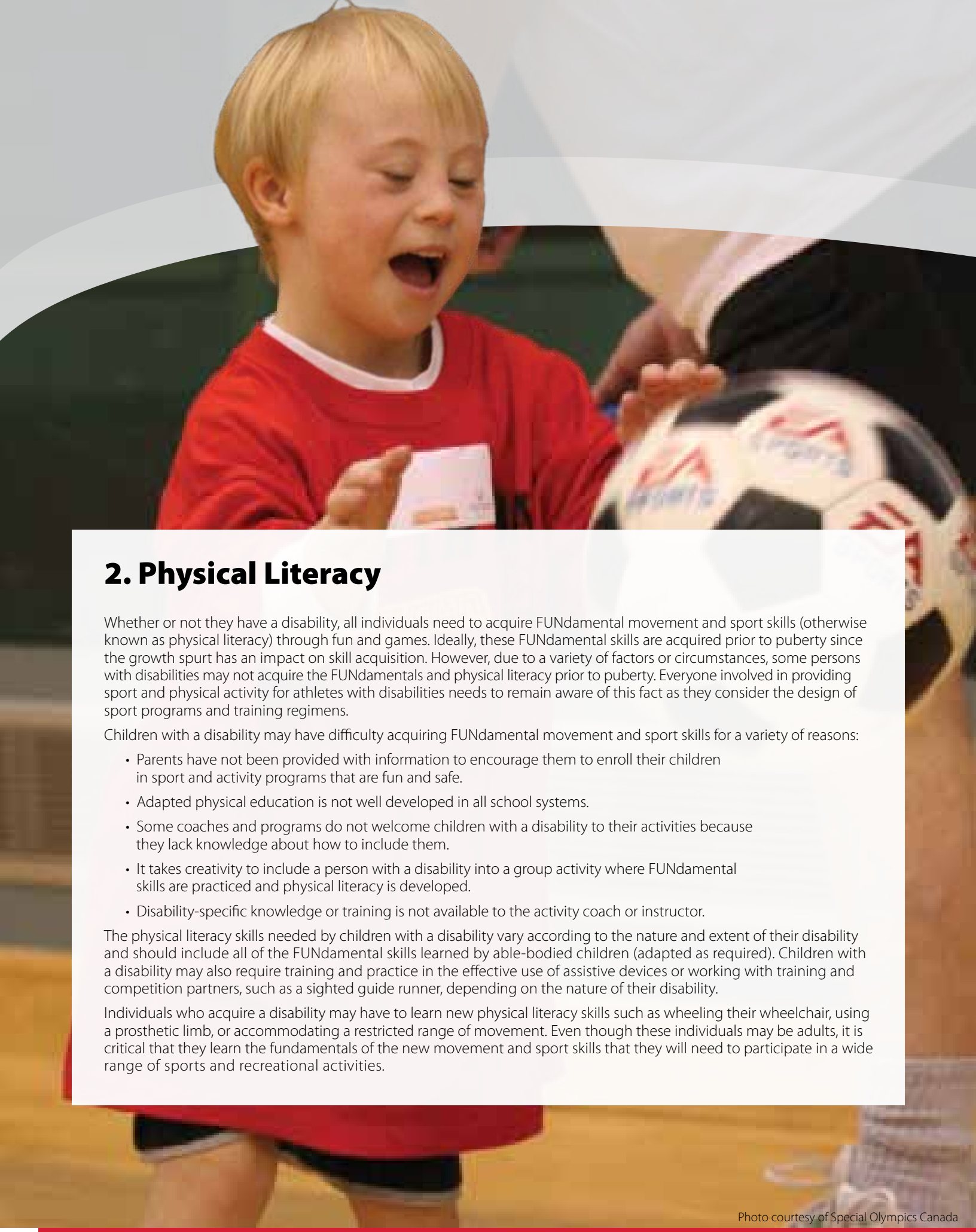
The LTAD model as presented in Canadian Sport for Life is based on current research in sport and exercise science together with observed best practices in athlete training and coaching, and the 10 Key Factors stem from this body of research and best practices. However, as we apply these factors to athletes with disabilities, we know there are extra considerations that need to be taken into account. We also understand that the science and research is less developed for athletes with disabilities than for able-bodied athletes. In this light, No Accidental Champions should be seen as an exciting first step towards inspiring prospective participants, athletes, coaches, parents, officials, volunteers, sport scientists and administrators towards understanding some of the principal challenges for athletes with disabilities and recognizing the opportunities and resources available to them. At the same time, it should be acknowledged that continued research is needed.

Note: The factors influencing LTAD for able-bodied athletes can be found in the resource paper Canadian Sport for Life (2005).

1. Excellence Takes Time

The 10-year rule states that it takes essentially 10,000 hours of training over 10 years for an athlete to reach peak performance. Based on the performance records of some athletes with disabilities, it appears that the 10-year rule applies equally well to athletes with certain types of physical and sensory disabilities as it does to able-bodied athletes. However, more research is required in this area to see if the 10-year rule is consistent for all types of disabilities.

It should also be noted that not all athletes choose to pursue elite performance. An athlete's principal motivation in pursuing physical activity and sport may bear no relation to the pursuit of high performance and medals, but focus instead on values around physical health and social involvement. Consequently, the length of time required for any athlete to achieve elite performances may vary according to the sport or activity and the goals of the individual. In the case of athletes with congenital or acquired disabilities, it may also vary according to the nature and extent of their disabilities. In the specific case of individuals who acquire a disability, their pre-disability sporting experience and level of expertise plays a factor as well.



2. Physical Literacy

Whether or not they have a disability, all individuals need to acquire FUNdamental movement and sport skills (otherwise known as physical literacy) through fun and games. Ideally, these FUNdamental skills are acquired prior to puberty since the growth spurt has an impact on skill acquisition. However, due to a variety of factors or circumstances, some persons with disabilities may not acquire the FUNdamentals and physical literacy prior to puberty. Everyone involved in providing sport and physical activity for athletes with disabilities needs to remain aware of this fact as they consider the design of sport programs and training regimens.

Children with a disability may have difficulty acquiring FUNdamental movement and sport skills for a variety of reasons:

- Parents have not been provided with information to encourage them to enroll their children in sport and activity programs that are fun and safe.
- Adapted physical education is not well developed in all school systems.
- Some coaches and programs do not welcome children with a disability to their activities because they lack knowledge about how to include them.
- It takes creativity to include a person with a disability into a group activity where FUNdamental skills are practiced and physical literacy is developed.
- Disability-specific knowledge or training is not available to the activity coach or instructor.

The physical literacy skills needed by children with a disability vary according to the nature and extent of their disability and should include all of the FUNdamental skills learned by able-bodied children (adapted as required). Children with a disability may also require training and practice in the effective use of assistive devices or working with training and competition partners, such as a sighted guide runner, depending on the nature of their disability.

Individuals who acquire a disability may have to learn new physical literacy skills such as wheeling their wheelchair, using a prosthetic limb, or accommodating a restricted range of movement. Even though these individuals may be adults, it is critical that they learn the fundamentals of the new movement and sport skills that they will need to participate in a wide range of sports and recreational activities.

Photo courtesy of Special Olympics Canada

Brian and Robin McKeever,
Cross-Country Ski
Vancouver 2010

3. Specialization

To the best of our current understanding, disability sports appear to be late specialization sports (see Canadian Sport for Life for more discussion of late and early specialization sports). Accordingly, children with congenital or early-acquired physical, intellectual or sensory disabilities should be exposed to the full range of fundamental skills before specializing in the sport of their choice. Similarly, adults with an acquired disability should master their new fundamental movement skills before specializing in a single sport.

4. Age Factors

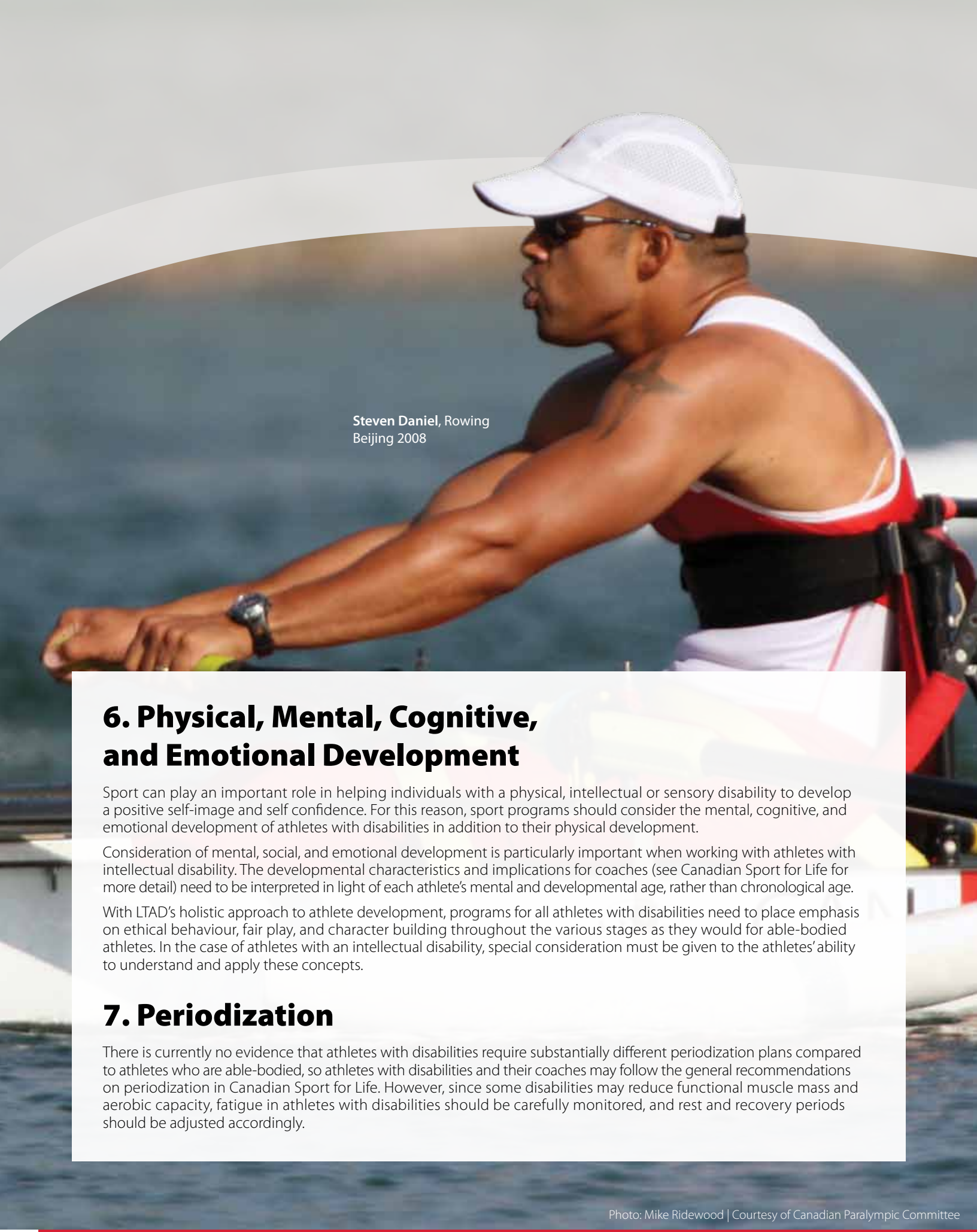
Some congenital disabilities are known to influence childhood and adolescent development and the timing of puberty; however, much more research is needed to understand fully their effect on development. For example, children with spina bifida are known to experience puberty earlier than their peers, and individuals with intellectual disability tend to enter puberty early but complete the process later. Because of these variations in the timing of puberty (and therefore the adolescent growth spurt), there will likely be variations in the ages at which sensitive periods of trainability occur. Mental and emotional age can also vary significantly (see below).

Although the timing of puberty may vary, the developmental sequence the adolescent goes through usually does not. The consistent theme is that coaches need to look beyond the chronological age of their athletes.

5. Trainability

Little is known about the sensitive periods of optimum trainability for individuals with a disability. In the absence of information to the contrary, it is suggested that the ages of optimum trainability, as shown in Canadian Sport for Life, be adjusted based on the observed age of puberty for children with a congenital disability. Whether there are sensitive periods of trainability during post-injury rehabilitation needs to be investigated for individuals with an acquired disability.

Photo: Kevin Bogetti-Smith | Courtesy of Canadian Paralympic Committee



Steven Daniel, Rowing
Beijing 2008

6. Physical, Mental, Cognitive, and Emotional Development

Sport can play an important role in helping individuals with a physical, intellectual or sensory disability to develop a positive self-image and self confidence. For this reason, sport programs should consider the mental, cognitive, and emotional development of athletes with disabilities in addition to their physical development.

Consideration of mental, social, and emotional development is particularly important when working with athletes with intellectual disability. The developmental characteristics and implications for coaches (see Canadian Sport for Life for more detail) need to be interpreted in light of each athlete's mental and developmental age, rather than chronological age.

With LTAD's holistic approach to athlete development, programs for all athletes with disabilities need to place emphasis on ethical behaviour, fair play, and character building throughout the various stages as they would for able-bodied athletes. In the case of athletes with an intellectual disability, special consideration must be given to the athletes' ability to understand and apply these concepts.

7. Periodization

There is currently no evidence that athletes with disabilities require substantially different periodization plans compared to athletes who are able-bodied, so athletes with disabilities and their coaches may follow the general recommendations on periodization in Canadian Sport for Life. However, since some disabilities may reduce functional muscle mass and aerobic capacity, fatigue in athletes with disabilities should be carefully monitored, and rest and recovery periods should be adjusted accordingly.

Photo: Mike Ridewood | Courtesy of Canadian Paralympic Committee

8. Calendar Planning for Competition

Within the able-bodied Canadian sport system, under-training and over-competition are common, and Canadian Sport for Life provides suggested ratios of training to competition hours at each LTAD stage. There is no evidence to suggest that athletes with disabilities require different ratios; however, different specific disabilities may require different training volumes. (For example, hand-cyclists may not sustain as much volume as cyclists using their legs.)

Effective competition for athletes with disabilities needs to be matched to the athletes' stage of development. This can be challenging when there are few athletes in a particular sport or classification/division within that sport, such as sports and events for athletes with high support needs or female athletes (both groups have often experienced cancellation of events due to too few competitors). As a result, creative solutions need to be developed to provide suitable competition opportunities for all.

Historically, local and international competition suitable for the Learn to Train and Train to Win stages have been more readily available than competition suitable for athletes at the Train to Train and Train to Compete stages.[5] While progress has been made in some areas and sports in recent years, competition opportunities remain uneven depending on the sports and their structure. The various sport organizations that serve athletes with disabilities need to continue to address this gap in the competition calendar if their athletes are to have optimum development.

9. System Alignment and Integration

CS4L recognizes the overarching role of Canada's sport system in developing athletes and promoting lifelong physical activity. This includes development of competition, coaching, funding, facilities and equipment, training partners, sport science, ancillary services, daily living support, and talent identification and development. Accordingly, LTAD calls for aligning the various components of the sport system to support athletes with all degrees of ability and disability in these areas.

By defining the key stages of athlete development, the LTAD model suggests how various organizations including Community, Provincial/Territorial and National Sport and DSOs, governments, schools, recreation, health care and rehabilitation organizations can optimize their contributions within the overall sport system. In particular, harmonization of F-PI/TI government policies and improved cooperation between able bodied and DSOs is essential. Without sport system alignment and appropriate integration, optimum benefits for athletes with disabilities will not be achieved.

10. Continuous Improvement

Sport for athletes with disabilities has developed rapidly in recent decades. New research, new equipment, and new techniques are constantly appearing worldwide, and to put Canadian athletes "out front", sport organizations must remain alert to take advantage of new information. Evaluating new research and innovations, selecting those which will be used, and then integrating them into programs and services must be an active, ongoing process tied to the LTAD concept of continuous improvement. Following this concept, we can ensure that LTAD for athletes with disabilities:

- Responds and reacts in a timely manner to new scientific and sport-specific data, observations, and research.
- Evolves continuously to create positive change in the sporting, physical activity, and physical education lives of individuals with a disability.
- Promotes ongoing education and sensitization of Federal, Provincial/Territorial, and Municipal governments, the mass media, and the Canadian sport system to the needs and expectations of athletes with disabilities.

[5] Report of the Minister of State's (Sport) Work Group on Sport for Persons with a Disability (July 2004).

Patrick Anderson,
Wheelchair Basketball
Beijing 2008

Photo: Kevin Bogetti-Smith | Courtesy of Canadian Paralympic Committee

Additional Considerations

There are many similarities between athletes with disabilities and able-bodied athletes. However, there are some differences that affect the LTAD process for athletes with a disability:

- Athletes with disabilities may have been born with a disability (congenital) or they may have acquired a disability later in life. Depending on the origin, this can impact the athlete's prior and future learning and development.

- Children with a congenital disability may not have the same opportunity to learn basic movement skills because they do not always have the same opportunities or resources for vigorous, physical play during their early years (the Active Start stage). This is sometimes due to long periods of hospitalization or the lack of suitable physical education programs, and it may also be due to parents and caregivers not receiving sufficient information to help them identify suitable sport and activity programs.

- Children with a sensory-impairment disability (e.g. blindness, deafness) may find it difficult to learn basic movement skills as they cannot process information and easily emulate teachers and peers. Different approaches to teaching basic skills may therefore be required.

- Athletes with disabilities may operate in a sport environment in which there are participants not found in able-bodied sport. Some athletes with disabilities require personal care support, interpreters, and other personnel not found in able-bodied sport. For example, runners who are blind or visually impaired may need sighted guides for training and competition, and most sports for athletes with disabilities require officials who are qualified to determine each athlete's classification or division of competition to ensure fairness. Failure of the sport system to develop these supporting roles will have a long-term negative impact on the development of athletes with a disability and their competition experience.

- Many athletes with disabilities require adapted equipment or modified facilities to take full advantage of their athletic potential and to minimize the barriers to sport participation that may be associated with their disability.

- Some competition models may lead to cancellation of events, or to inappropriate combinations of athletes in some classifications that further limit fair and valuable competition.

Photo courtesy of Special Olympics Canada

Changes
To the System

LTAD is not just about developing athletes – it is about developing the sport and recreation system in which Canadians become athletes or acquire the capacities to participate in lifelong activity. With the proper coaching, services, administration, and sport and recreation programming in place, athletes with disabilities will learn and perform their activity or sport in ways that optimize their long-term development. Optimal development means optimal success, whether that means achieving medal performances in competition, or being able to enjoy the daily rewards of regular physical activity.

For athletes with disabilities, this means that sport and recreation organizations need to answer the needs of athletes with disabilities at each stage of development through appropriate planning and consistent delivery. Ten "pillars of support" have been identified to ensure athletes with disabilities reach their optimal level of development:

1. **COACHING**
2. **COMPETITION**
3. **FUNDING**
4. **EQUIPMENT**
5. **FACILITIES**
6. **TRAINING & COMPETITION PARTNERS**
7. **SPORT SCIENCE**
8. **OFFICIALS SUPPORT**
9. **ATHLETE SUPPORT**
10. **TALENT DEVELOPMENT**

Amy Aslop, Goalball
Athens 2004

Photo: Benoit Pelosse | Courtesy of Canadian Paralympic Committee

Phil Chew, Head Coach,
Team BC Para Alpine

Coach Education

When they engage in physical activity and sport, participants with a disability need lifelong access to knowledgeable coaches and teachers, particularly if they are learning a new sport or activity. Accordingly, NSOs and DSOs need to continue developing coaching materials within Canada's National Coaching Certification Program to address the variety of sporting contexts and activity streams for athletes with disabilities, including intellectual, sensory and physical disability.

Coaches who are unfamiliar with disabilities frequently lack confidence in their ability to support athletes with disabilities. These coaches especially need the support of the appropriate NSOs, DSOs, and disability groups to gain the knowledge, skills, techniques and confidence required to work effectively with athletes with disabilities.

As well, while some athletes with disabilities will be best served with a direct referral to specialized sport or activity programming for their particular disability, it must be remembered that many persons with a disability live in remote areas of Canada with little or no access to such specialized programs. Coaches in these remote areas stand at the front line in delivering sport and recreation programming for ALL persons in their communities, including those with a disability. These prospective coaches of athletes with disabilities deserve, at the very least, some relevant coaching materials to help them in coaching persons with a disability.

Coaches and teachers who work with participants in the Active Start, FUNdamentals and Learn to Train stages should be versed in sensitization tips and techniques[6] for introducing persons with a disability to sports and physical activity. They must display positive attitudes towards persons with a disability and have strong instructional and interaction skills. They must be able to create a positive learning environment, be aware of different learning styles, and adapt equipment, skills, and rules to get individuals with disabilities more actively engaged in sport and activity.

At the Train to Train and Train to Compete stages, coaches of athletes with disabilities need to be specialists in working with developing athletes. They need to possess strong knowledge of adaptations of activities for skill and physiological development, as well as knowledge of disability sport rules and classifications/divisioning. They must be ready to help athletes find sports where they are likely to excel, using knowledge of disability characteristics and sport-specific technical knowledge to recognize predominant strengths and aptitudes. In some contexts, knowledge of fitting the athlete with a disability to sport-specific equipment is also important.

Coaches who train athletes with disabilities to win in high performance contexts require knowledge of advanced sport-specific technical requirements and skills. Again, they also need advanced knowledge of the disability characteristics related to sport and how these interface with specialized equipment in instances where it is required.

[6] See Coaching Athletes with a Disability, published by the Coaching Association of Canada at www.coach.ca.

Photo: Susan Hughes | Courtesy of Disabled Skiers Association of BC

Competition Formats

Competition for athletes with disabilities should be based on the long-term needs of the participants rather than on traditional event formats and the needs of organizers. Athletes need access to competitions where there are qualified ancillary personnel such as officials, classifiers, guides for athletes who are blind or visually impaired, and sign language interpreters to make sure that competition is ethical, fair, appropriate, and well-organized. They also need competitions to be structured to prevent the cancellation of events or classes/divisions within events.

The geographical scale of competition should also be relevant and appropriate to the LTAD stage. For example, a National championship is not especially practical or useful for the developmental needs of athletes at the Learn to Train stage. Strong local, regional, provincial, national, and international organizations are needed for appropriate competitions.

Local Competition

Competition is not recommended for the Active Start stage; the emphasis should be on fun programs that promote participation and the acquisition of basic movement skills as a foundation for physical literacy. In some instances, depending on the degree and nature of the disability, the emphasis may be simply on basic skill acquisition and discovery of self through movement.

At the FUNdamentals stage, any competition should mean fun, local events that introduce athletes to a variety of sports with no focus on results. Organizers should ensure that there are enough participants within a classification/division to hold events. If this is not possible, sport organizations need to find creative ways to ensure that participants get appropriate play that is suitable for their age, skill, and fitness levels.

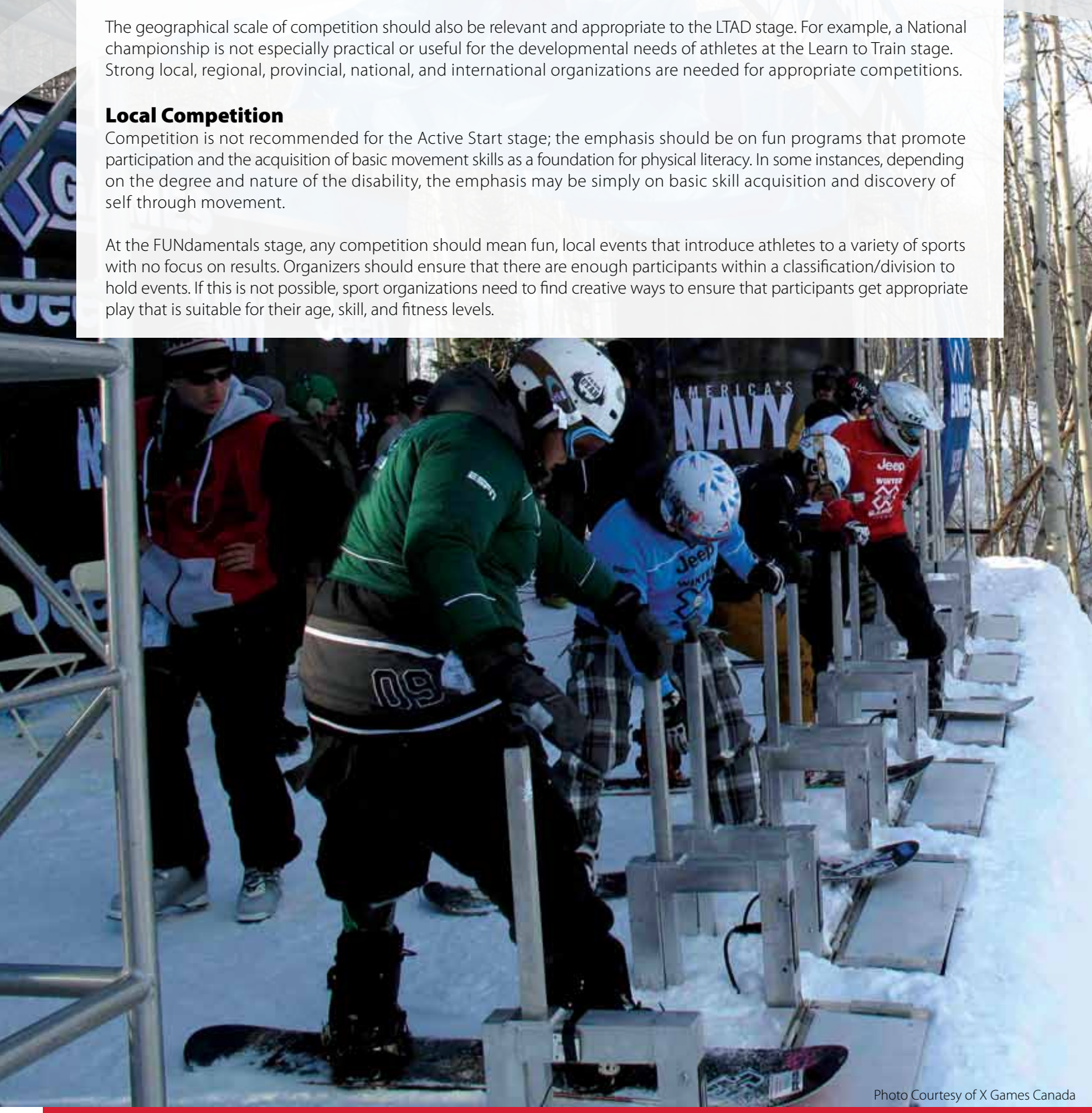


Photo Courtesy of X Games Canada

PHOTO: Mike Ridewood | Courtesy of Canadian Paralympic Committee

Regional Competition

At the Learn to Train stage, competition may start to include regional events. Sport organizations need to ensure an appropriate ratio of training to competition for athletes at this stage, and they should provide guidance on how to use competitions to support and reinforce training goals. There should be opportunities for athletes with disabilities to sample training and competition in a variety of sports and activities, so they can find those they enjoy and to which they are best suited.

Provincial Competition

At the Train to Train stage, provincial events become relevant to athlete development and may be added to the competition schedule. Again, athletes need direction regarding appropriate ratios of training to competition, and competitions should be used to support and reinforce training goals. Athletes should still have the opportunity to sample training and competition in a few different sports and activities as they may still discover that they have greater interest or aptitude in another area.

National Competition

National competitions should serve the Train to Compete stage. (In the case of athletes with an intellectual disability, they may also serve the Learn to Compete stage.) The aim of competing at the National level is to gain progressive experience with greater training loads and increased caliber of competition. Coaches must ensure an appropriate ratio of training to competition, as well as a selection of competitions that fit well with long-term training goals, which likely include the eventual transition to international competition.

International Competition

International competitions fit the Train to Compete and Train to Win stage. The goal is podium performances and recognition at the highest level possible. Regardless of the type of disability, athletes are training with the aim of maximizing all of their performance capacities so they can win medals and titles. To assist them, coaches and training partners must have specialized expertise and experience to provide highly individualized, high performance training.

Photo: Kevin Bogetti-Smith | Courtesy of BC Games Society

Sam Danniels, Alpine Ski
Vancouver 2010

Funding, Access, Equipment, and Facilities

LTAD requires consistent long-term funding, and that funding needs to be distributed across all stages of the model. At different stages, the best "bang for the buck" comes from focusing on the most critical needs of athletes and participants at that stage. Those needs are described below. Likewise, the equipment and facility needs of athletes vary across the stages, with access to facilities and equipment being particularly important at the Active Start and FUNdamentals stages. At the Train to Win stage, access to cutting-edge equipment designed to give Canadian athletes an advantage in international competition is a key requirement.

Why Funding?

Funding is important for the following reasons:

- For local organizations at the First Contact and FUNdamentals stages, helping to deliver the range of fun activities that will encourage young Canadians with a disability to try different sports, develop physical literacy, and build physical activity into their daily lives.
- For equipment, training, and competition as well as affordable coaching and access to facilities. During the Train to Train and Train to Compete stages, many athletes withdraw from competition due to lack of funds and supportive resources.
- For athletic success at the Train to Compete and Train to Win stage, where there is a need for adequate carding of high-performance and development athletes (i.e. recognition under the Athlete Assistance Program) to permit them to concentrate on training and competition, and to obtain the coaching, competition, and equipment they need to take on the world and achieve podium performance.
- For the Active for Life transition from high performance competitive sport to healthy, lifelong activity and widely available recreational opportunities, helping athletes with disabilities to become involved in other aspects of their sport.

Photo courtesy of Canadian Sport Centre Pacific

Why Access to Equipment and Facilities?

Access to equipment and facilities is important for the following reasons:

- While all sport requires the use of equipment, for many athletes and participants with disabilities specialized equipment makes sport participation possible.
- Affordable, 'find-able' equipment, suitable to the needs of athletes and participants in all stages is essential for increasing participation opportunities and ensuring quality sport experiences.
- Innovative approaches to equipment design and development will help make sport for participants with a disability more affordable, and - for athletes in Train to Win - support and promote performance.
- Affordable, accessible facilities allow persons with a disability to participate in sport, from Active Start to Active for Life.
- Scheduling and programming — including at suitable hours and costs — at sport facilities needs to permit athletes and participants with disabilities to train and participate in sport at all stages. Access to facilities includes access for the human supports and equipment needed to participate and train.
- Access to facilities includes access for the human supports and equipment needed to participate and train.
- Access to facilities also means that athletes and participants with disabilities can get to and from the facility with their supports and equipment, including via specialized public and private transportation.

Training and Competition Partners

For optimal development, athletes with disabilities need training and competition partners. While many able-bodied athletes like to train with a partner for additional encouragement, a training partner may be an absolute necessity and integral part of the sport for some athletes with disabilities. For example, cyclists who are blind cannot train or race without a sighted pilot, while a boccia athlete with severe cerebral palsy cannot train without a partner to retrieve balls.

To continue to improve sport performance among athletes with disabilities, training and competition partners need to be equally committed to their sport, and they need to be recognized as athletes in their own right. As individual athletes with disabilities improve their performance, there may be a need to replace existing (and sometimes long-time) training and competition partners with new partners whose athletic performance can keep pace with that of the athlete. Athletes with disabilities cannot improve if they seriously out-perform the partner who is working with them, and they should not feel obligated to remain with an able-bodied training and competition partner if they feel the partner is holding them back.

Sport and physical activity organizations need to make the recruitment and training of able-bodied competition and training partners an integral part of their sport development strategy. At the same time, coaches need to pay more attention to optimizing the very close relationship needed between athletes with disabilities and their able-bodied guides.

Above all, sports need to ensure that the performance of athletes with disabilities is never compromised by performance limitations of guides, pilots, and other able-bodied training and competition partners.

Mark Breton,
Cycling Individual Time Trial
Beijing 2008

Sport Science

In keeping with the LTAD key factor of Continuous Improvement, sport science can contribute much to the understanding of training and development for athletes with disabilities through ongoing research. New scientific discoveries can affect our understanding of how athletes should train, their competition requirements, opportunities for increased access to sport and activity, techniques for enhanced performance, and innovations in equipment.

The contribution of sport science is needed at every stage of athlete development. Sport scientists can make major contributions at the FUNdamentals and Learn to Train stages 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. For example, in the case of disabilities about which currently little is known, particular emphasis needs to be placed on finding out more about the early skill learning of children or adults with these disabilities.

At the Learn to Train, Train to Train, and Train to Compete stages, sport science can contribute through optimization of performance techniques. With some types of disability, this may include creating a better understanding of the individualization of the interface between the athlete and their adaptive and sporting equipment. Training loads can be refined based on periodic evaluations of physiological status, and sport psychology programs can be developed according to developmental age and cognitive ability or disability. Attention should be given to adjustment to disability, particularly in the case of a person with an acquired disability.

At the Train to Win stage, athletes with disabilities need state-of-the-art physiological, biomechanical, and psychological testing and training prescriptions. Coaches need to understand and utilize existing sport science, and sport scientists need to undertake original research on sport performance techniques, training methods, and equipment design to give athletes with disabilities a competitive advantage at the international level. With variances between different disabilities and affects on performance, it is often difficult to compare across disabilities: researchers and coaches should thus consider individual progressions through baseline testing and re-testing protocols to help create a better understanding of benchmarks in addition to better coaching.

Photo: Mike Ridewood | Courtesy of Canadian Paralympic Committee

Officials' Support

At each stage of LTAD, athletes need reliable support and direction from officials. These include sport-specific officials such as referees, umpires, and technical officers, generic sport officials such as doping control officials, and officials unique to sport for athletes with disabilities such as interpreters and classifiers. Athletes with disabilities deserve to work with a wide range of officials whose skills and knowledge are appropriate to the athlete's level of development and the level of competition in which they take part.

In this regard, systematic plans are needed to develop officials within sports for athletes with disabilities, including high-level officials. This will ensure that when Canadians compete at the highest levels, they will be familiar with the rules and their interpretation.

When working with young athletes with disabilities, officials need to balance the athletes' learning needs with the flexibility to have fun in a relaxed competitive environment. Well-meaning officials may inadvertently allow young athletes to develop incorrect skills and habits that are difficult to change later. For example, officials should not make lenient calls just because athletes have a disability.

Athletes' Support

Athletes at all levels require access to professionals who can provide services in the area of injury prevention, sport nutrition, sport medicine, and rehabilitation. Counseling services are also important for optimal athlete development, particularly in the areas of educational, personal, and career decisions.

For young people with a disability, early identification of functional abilities and adaptive techniques can lead to more enjoyable sport and recreation participation and help to guide them into a range of sports and activities for which they are best suited.

Athletes with a physical disability may rely on equipment such as wheelchairs, adapted skis, and prosthetic limbs, all of which need maintenance from skilled technicians. Sport groups need recruiting and succession plans to ensure a continual supply of expertise in this area.

Photo: Kevin Bogetti-Smith | Courtesy of BC Games Society

Daily Living Support

While some athletes with disabilities manage their own daily living requirements, others may need assistance, particularly those with high support needs. The extent and type of assistance will vary by individual and with the stage of development.

At the Active Start and FUNdamentals stages, the most critical daily living support often comes from parents and caregivers. They need to encourage children with a disability and others who have acquired a disability to get active and try a wide variety of recreational and sporting activities. This will most often include helping them to get to and from sport and activity venues, and to help them deal with any barriers they encounter.

At the Learn to Train, Train to Train, and Train to Compete stages, one of the most important elements of daily living support is assistance in getting to and from training sessions and competition on a regular basis. This process is sometimes further hampered by cost structures at sport venues that require admission to be paid both by the athlete (which is reasonable) and by the athlete's assistant. Sports need to work with training venues to develop policies on accommodating both daily living and training assistants.

At the Train to Win and Train to Compete stages, the purpose of daily living support is to allow elite athletes with disabilities to focus on their sport performance rather than on the challenges associated with travel to and from training and competition. This is particularly important at international competitions. Sports need to consider ways to reduce the difficulties of having one individual provide daily living support to the athlete while also acting as the training and competition support partner or coach.

Talent Development

Not all persons with a disability aim for high performance competition and medals. For many athletes, their goal is simply to enjoy physical activity, interact socially, or improve their quality of health. Each athlete may have a unique definition of a "personal best". However, for those athletes who are inclined to pursue competitive achievement, a logical system of talent development can help to propel them along the path to high performance.

The pool of Canadian high performance athletes with disabilities is relatively small, and Canada cannot afford to waste any of this potential. As in well-organized able-bodied sport, talent development for athletes with disabilities begins as individuals master FUNdamental movement skills and apply them in a wide variety of sport and physical activity settings.

This is the basis of physical literacy. While developing physical literacy is important for all children, it is especially critical for children with a disability. Physical literacy provides the foundation for long-term participation and achievement in sport and physical activity, but it is even more important to ensuring the future ability of the person with a disability to live as independently as possible.

Athletes with disabilities who are not progressing in a particular sport may be redirected into another that is better suited to them. Retaining all potential athletes in the talent pool, and finding the right fit between each athlete and their preferred sports, will benefit both the sport and the athlete.

In this manner, talent development or "identification" takes place as each person with a disability has the opportunity to learn a wide variety of sports and identify the ones they wish to pursue to the highest level possible. In contrast, the system of talent development should not eliminate sporting options by prematurely directing individuals to sports for which they appear initially best suited by virtue of body size and shape, skill potential, or physiological response.

Next Steps

Systematic implementation of LTAD is critical if Canada is to retain its international leadership in competitive sport for athletes with disabilities and in providing expanded opportunities for athletes with disabilities who have all degrees of interest. NSOs, both those that integrate athletes with disabilities and those that govern sports contested solely by Canadians with disabilities, need to develop and maintain detailed plans to implement effective LTAD programs, as do DSOs that serve a specific disability. Much progress has been made in developing LTAD programs in these areas, but continued effort and improvement is needed.

LTAD for high performance success and for the long-term health of Canadians with a disability will not happen by chance, but only through the concerted and coordinated efforts of all partners in the Canadian sport system.

There are no accidental champions.

Photo: Mike Ridewood | Courtesy of Canadian Paralympic Committee

Earle Connor, Athletics
Beijing 2008

Billy Bridges,
Sledge Hockey
Vancouver 2010

To Learn More

Canada has many NSOs, MSOs and DSOs that are dedicated to developing and delivering sport and physical activity programming to specific disability groups. A few of these organizations are listed below, and we encourage you to learn more by visiting them online:

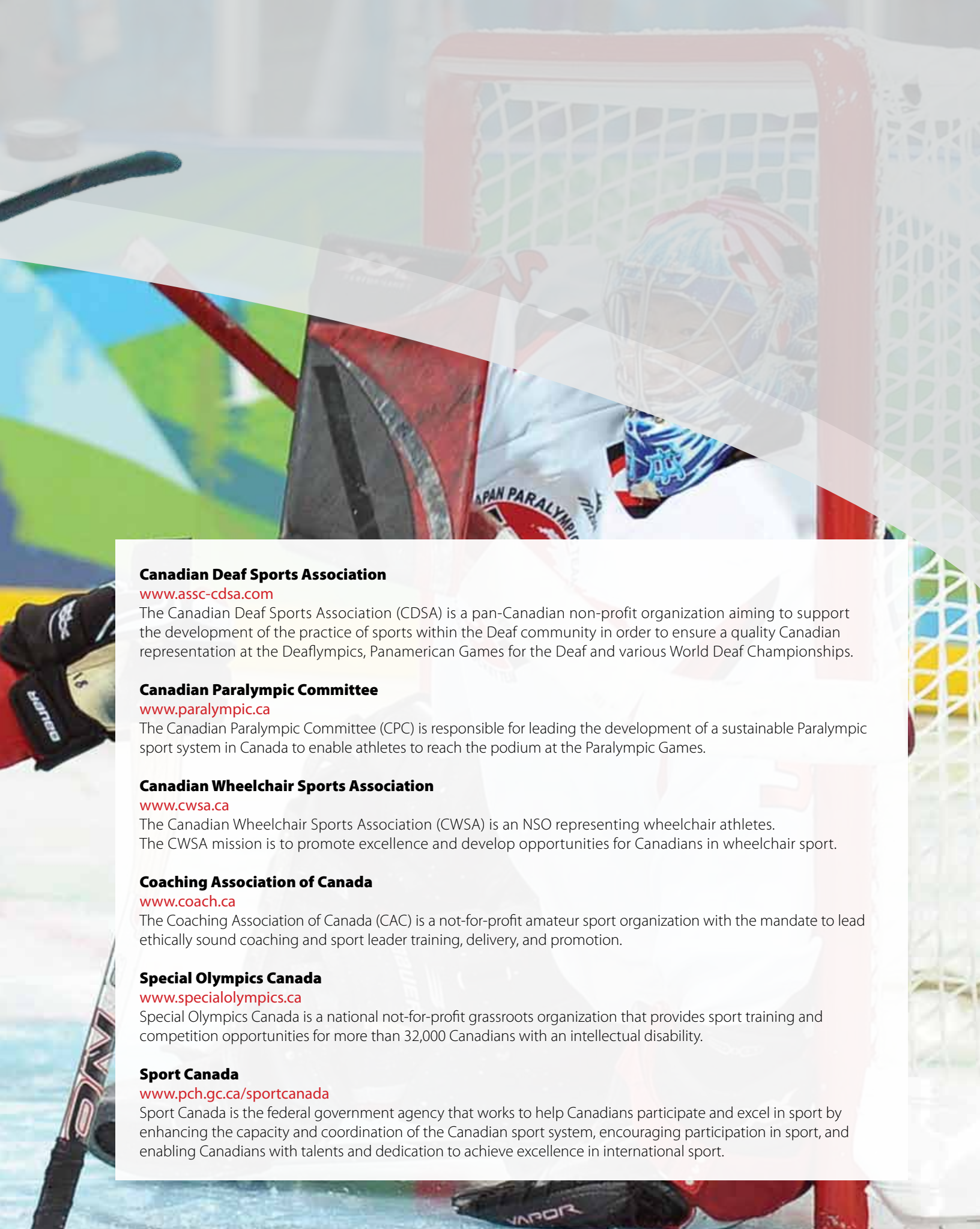
Active Living Alliance for Canadians with a Disability
www.ala.ca
The Active Living Alliance for Canadians with a Disability (ALACD) promotes, supports and enables Canadians with disabilities to lead active, healthy lives. ALACD provides nationally coordinated leadership, support, encouragement, promotion and information that facilitates healthy, active living opportunities for Canadians of all abilities across all settings and environments.

Canadian Amputee Sports Association
www.canadianamputeesports.ca
The Canadian Amputee Sports Association (CASA) offers information and support to amputee and les autres athletes and potential athletes on a wide range of athletic and recreational activities, including hockey, golf, powerlifting and lawn bowling. CASA also provides competitive and technical support for athletes in conjunction with existing provincial and national sports associations.

Canadian Blind Sports Association
www.canadianblindsports.ca
Canadian Blind Sports Association (CBSA) is the recognized NSO for the Paralympic Sport of Goalball, and advocates within the sport system for Canadians who are visually impaired or blind.

Canadian Cerebral Palsy Sports Association
www.ccpsa.ca
The Canadian Cerebral Palsy Sports Association (CCPSA) is an athlete-focused national organization administering and governing sport opportunities targeted to athletes with CP and related disabilities.

Photo: Matthew Manor | Courtesy of Canadian Paralympic Committee & Hockey Canada



Canadian Deaf Sports Association
www.assc-cdsa.com
The Canadian Deaf Sports Association (CDSA) is a pan-Canadian non-profit organization aiming to support the development of the practice of sports within the Deaf community in order to ensure a quality Canadian representation at the Deaflympics, Panamerican Games for the Deaf and various World Deaf Championships.

Canadian Paralympic Committee
www.paralympic.ca
The Canadian Paralympic Committee (CPC) is responsible for leading the development of a sustainable Paralympic sport system in Canada to enable athletes to reach the podium at the Paralympic Games.

Canadian Wheelchair Sports Association
www.cwsa.ca
The Canadian Wheelchair Sports Association (CWSA) is an NSO representing wheelchair athletes.
The CWSA mission is to promote excellence and develop opportunities for Canadians in wheelchair sport.

Coaching Association of Canada
www.coach.ca
The Coaching Association of Canada (CAC) is a not-for-profit amateur sport organization with the mandate to lead ethically sound coaching and sport leader training, delivery, and promotion.

Special Olympics Canada
www.specialolympics.ca
Special Olympics Canada is a national not-for-profit grassroots organization that provides sport training and competition opportunities for more than 32,000 Canadians with an intellectual disability.

Sport Canada
www.pch.gc.ca/sportcanada
Sport Canada is the federal government agency that works to help Canadians participate and excel in sport by enhancing the capacity and coordination of the Canadian sport system, encouraging participation in sport, and enabling Canadians with talents and dedication to achieve excellence in international sport.

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References

Canadian Sport Centres (2005). Canadian Sport for Life. Canadian Sport Centre – Vancouver.

Coaching Association of Canada (2005). Coaching Athletes with a Disability. Ottawa: Coaching Association of Canada.

Special Olympics Canada (2007). Long-Term Athlete Development for Athletes with an Intellectual Disability. Toronto: Special Olympics Canada.

Buchanan, C. R. (2000). Abnormalities of growth and development in puberty. Journal of the Royal College of Physicians of London, Vol 34(2).

National Consortium on Physical Education and Recreation for Individuals with Disabilities. www.ncpad.org

Hezkaih, A. (2005). Adapted physical activities for the intellectually challenged adolescent: Psychomotor characteristics and implications for programming and motor intervention. International Journal of Adolescent Medicine Health, 17(1), 33-47.

Sherrill, C. (1998). Adapted Physical Activity, Recreation and Sport: Cross disciplinary and Lifespan. Boston: McGraw-Hill Higher Education.

Statistics Canada. Participation and Activity Limitation Survey 2006: Tables. Ottawa: Statistics Canada, 2007.

Report of the Minister of State's (Sport) Work Group on Sport for Persons with a Disability. (July 2004).

Thematic Network of Adapted Physical Activity.
www. Kuleuven.ac.be/thenapa/adapt.htm

United Nations Convention on the Rights of Persons with Disabilities. (2008).
www.un.org/disabilities/convention/conventionfull.shtml

Paul Gauthier, Boccia
Beijing 2008

Photo: Mike Ridewood | Courtesy of Canadian Paralympic Committee

Vivianne Forrest and Lindsay Debou,
Alpine Ski
Vancouver 2010

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