

## APPENDIX 1

### DISABILITY MUST KNOWS

## APPENDIX 2 – DISABILITY MUST KNOWS: ATHLETES WITH PHYSICAL DISABILITIES

(See Chapter 20 on Wheelchair Tennis)

### Mobility Impairment - Spinal Cord Injury (SCI)

**Description:** Disruption of the spinal cord prevents transmission of nerve signals from the brain to the muscles, keeping muscles below the level of injury from functioning. Spinal cord injury is most often acquired through traumatic injury.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Safety considerations	Special considerations	Recommendations to coaches
<p>The level of disability is related to where in the spinal cord injury occurs. The nearer the injury is to the head (higher up the spinal cord), the greater the disability.</p> <p><b>Quadriplegia</b> means that arms, trunk, and legs are affected. <b>Paraplegia</b> means that the trunk and legs are affected.</p> <p>Most SCI athletes use a wheelchair both for daily living and for sport. Different sports use different wheelchair designs for high performance sport. A “sport” type daily living wheelchair is adequate for introduction to most sports.</p> <p>Following the initial body changes in the months after the injury, disability remains the same over time, with little progression.</p>	<p>SCI athletes engage in all wheelchair sports and most other sports. Popular competitive sports are quad rugby, wheelchair basketball, wheelchair tennis, swimming, track and field, cross country skiing, and downhill skiing. With appropriate adaptations to equipment and rules, SCI athletes take part in almost all sports.</p> <p>People who were athletes before injury often adapt to wheelchair versions of sports more readily than people who were not involved in sport before injury.</p> <p>Transportation and facility accessibility are major barriers to participation. Wheelchair-accessible transportation to and from training and competition can be difficult.</p> <p>Facilities need to be equipped with wheelchair-accessible playing surfaces, pools, washrooms, doors, ramps, etc. In addition, alternate formats of signs are needed, and facility staff must be sensitive to the needs of athletes with a disability.</p>	<p>Sport participation for people with SCI is important to their cardiovascular health, since it is more difficult to raise the heart rate to a “fitness-benefit” level when the large muscles of the hips and legs are not used.</p> <p>Sport develops good wheelchair handling skills and endurance, which make daily living easier.</p> <p>Athletes with a disability have a feeling of being included.</p> <p>In addition, there are important self-esteem and social benefits to sport participation.</p>	<p>Since there is often little or no feeling in the lower limbs, it is possible for the athlete to injure a limb and not be aware of it. The coach and the athlete with a disability therefore need to keep an eye open for feet or toes dragging on the ground, and athletes may need to be reminded.</p> <p>For the same reason, care needs to be taken that SCI athletes do not transfer onto surfaces that are hot from summer sun or very cold in winter.</p> <p>Some quadriplegics have a limited ability to control their body temperature. Care therefore needs to be taken to prevent the athlete from getting too cold or overheating.</p> <p>Because of difficulty accessing bathrooms at some sport venues, athletes sometimes restrict fluid intake. Encourage adequate hydration.</p>	<p>SCI athletes use wheelchairs for both daily living and sport, and in both cases almost all of the motion is in a forward direction. This uses some muscles around the shoulder much more than others and can lead to overuse injuries. For this reason, pre and post exercise stretching is important, and training should strengthen <i>all</i> the muscles in the shoulder region.</p> <p>If the muscles of the trunk function poorly, then sitting balance will be difficult, and the upper body will need to be supported by the wheelchair design, including proper strapping.</p> <p>Difficulties with bowel and bladder control may require athletes to interrupt or discontinue a particular training session.</p>	<p>Think of the wheelchair as a piece of sporting equipment, like a kayak, that is propelled by the arms:</p> <ul style="list-style-type: none"> <li>• Pushing on the hand rim causes wear and tear on the hands. Athletes should protect their hands with gloves or tape.</li> <li>• For best communication get eye-to-eye with the athlete by kneeling or sitting. Don’t make the athlete always look up at you.</li> <li>• Be aware that the surface the athlete is wheeling over makes a huge difference to how hard the athlete has to work. Smooth hard surfaces are better than rough soft surfaces.</li> </ul> <p>The key message is that athletes need to self-identify their needs and their abilities.</p> <p>Don’t ask what caused an athlete’s injury. If athletes want to tell you, they will.</p>

**Listen to the athletes: They are the “experts” on their disability and they know what accommodations they need.**

## APPENDIX 2 – DISABILITY MUST KNOWS: ATHLETES WITH INTELLECTUAL DISABILITIES

The term “intellectual disabilities” describes a wide range of conditions having the main characteristics of low or very low intelligence and deficits in adaptive behaviour. The term “intelligence” refers to intellectual functioning in a general cognitive ability sense, rather than one facet of ability (or problems in just one area). “Adaptive behaviour” refers to the effectiveness with which individuals meet the standards of personal independence and social responsibility expected of people of their age and cultural group. Deficits in adaptive behaviour are evaluated according to developmental age. During infancy and early childhood, these deficits may be observed in areas such as sensori-motor, communication, self-help, and socialization skills. During childhood and early adolescence the deficits may focus more on the application of basic academic skills, reasoning and judgment, and social skills. During late adolescence and adulthood, adaptive behaviour centres more on vocational and social responsibilities.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Safety considerations	Special considerations	Recommendations to coaches
<p>Heterogeneous group of characteristics, wide range of ability levels.</p> <p>Chronological age may not match developmental ability.</p> <p><b>Key concepts:</b></p> <ul style="list-style-type: none"> <li>• Sub-average intellectual functioning</li> <li>• Deficits in adaptive behaviour</li> <li>• Disability occurs during developmental period (birth–18 yrs)</li> <li>• May lag behind in basic motor skills</li> <li>• Under-represented group, may not have had opportunity to participate in sport and physical activities</li> <li>• Associated disabilities or disabilities in addition to intellectual may be prevalent, more common ones include Down syndrome, seizures, autism, Atlanto-axial instability (greater than</li> </ul>	<p>Note heterogeneity and varying abilities.</p> <p>May require basic motor skill development as a prerequisite to performing or executing specific sport skills, and increased supervision.</p> <p>Transportation to practice/competitions may be a key accessibility issue.</p> <p>Some athletes may be on fixed income and consideration needs to be made for purchase of equipment and registration fees.</p>	<p>Evidence supports that participation in sport and physical activities has a positive impact on the quality of life of people with intellectual disabilities (e.g., fitness, self-esteem, employability, as well as cognitive, motor, and social development).</p> <p>Sport and physical activity also provide the opportunity for increased participation in society for people with intellectual disabilities.</p>	<p>Collaborate with athlete, parent or guardian on behavioural and supervision needs.</p> <p>Emergency Action Plan must include procedure for seizures. Obtain seizure history to include type, length of the seizure, and presence of auras (athlete able to anticipate onset of seizure).</p> <p>If coaching athletes with Down syndrome, determine if they have been cleared for Atlanto-axial instability (examination includes x-rays by a physician briefed on the nature of the condition). If not examined, restrict from participation in sports and activities such as contact sports, diving, and gymnastics. Determine if athlete with Down syndrome has other characteristics you should be aware of such as congenital heart condition, underdeveloped circulatory system, or low respiratory capacity.</p>	<p>A large number of athletes with intellectual disabilities medicate for various medical or behavioural conditions. Be aware of what these medications are and of potential contraindications for participating in sport and physical activities. Articulate your need to know if medications change and the impact this change may have on performance and behaviour.</p> <p>Athletes may have difficulty with transfer of skills from one environment to another (e.g., from one playing field to another or from indoor to outdoor setting).</p> <p>Change of routine, or change in coaching staff or volunteers, may elicit behavioural reactions (e.g., the participant may become apprehensive about getting involved in the activities; he or she may be stubborn or show signs of decreased attention). Athletes with intellectual disabilities are</p>	<ul style="list-style-type: none"> <li>• Do not be afraid to ask questions.</li> <li>• Review or discuss with best contact any athlete medical considerations (including medication and associated disabilities) you as coach may need to be aware of from a practice planning or safety perspective.</li> <li>• Plan drills/activities that are age appropriate (i.e., chronologically appropriate but also adapted to the degree of cognitive understanding of the participant).</li> <li>• Communicate about changes in medication (that may affect performance or behaviour) and any incidents that may have occurred prior to practice or competition.</li> <li>• Determine level of ability in all domains (learning/cognitive, social/emotional, physical/motor).</li> <li>• Determine level of participation in the past in sport or other physical activity programs (integrative or not) and the outcome (if they were involved).</li> <li>• If the athlete will be participating with athletes without disabilities, find out about prior experiences that other members of the team or group (including coaches and other volunteers) have had with athletes with</li> </ul>

<p>normal flexibility in upper two vertebrae; characteristic of approximately 17% of people with Down syndrome)</p> <ul style="list-style-type: none"> <li>• Greatest needs often reported in the learning/cognitive and social/emotional areas.</li> </ul>				<p>comfortable with routine and structure.</p> <p>Talk with the parent, guardian, or caregiver to get the information that is needed to provide consistent management of behaviours that may require special considerations or interventions (this includes necessary supervision and correction of behaviours).</p>	<p>disabilities. These discussions will assist in clarification and create a more welcoming environment.</p> <ul style="list-style-type: none"> <li>• Be aware of necessary prerequisite skills (e.g., basic motor skills) required for success in specific sport skills.</li> <li>• Do not “overload” participants with instructions. Check for understanding. Make sure you have the athletes’ attention before giving instructions (e.g., maintain good eye contact).</li> <li>• You may need to complete a task analysis in more detail than first thought.</li> <li>• Adhere to appropriate and safe supervision practices at all times. This is especially important during the early stage of the coach–athlete relationship (e.g., when the coach is still assessing the athlete’s abilities)</li> <li>• The athlete with an intellectual disability may take longer to process information or instructions. Remember to check frequently for understanding.</li> <li>• Repetition, structure, and routine are helpful.</li> <li>• Research and review SOC sport rules to prepare athlete for Special Olympic competitions if the athlete is training in a generic program but competing in Special Olympic competitions.</li> <li>• Familiarize yourself with the SOC divisioning process or concept that addresses fairness of competition.</li> </ul>
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Remember: Coaching is Coaching!

## APPENDIX 2 – DISABILITY MUST KNOWS: MOBILITY IMPAIRMENTS - AMPUTEES

**Description:** A person who has had all or part of a limb removed/amputated or is born without a limb.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Safety considerations	Special considerations	Recommendations to coaches
<p>Loss of a limb can be either congenital or acquired.</p> <p>With the use of a prosthesis (artificial limb) many athletes can compete in both able-bodied sport and Paralympic sport.</p>	<p>In lower limb amputees, the energy required for daily living and sport activities increases the higher on the leg the amputation occurred. The athletes may grow fatigued more rapidly.</p> <p>Sport prostheses are as important to amputees as sport equipment is to able-bodied athletes.</p>	<p>The higher level of energy required for daily living activities in lower limb amputees encourages a sedentary lifestyle.</p> <p>Sport and physical activity offer important contributions to reducing weight, increasing fitness, and protecting against heart disease and diabetes.</p>	<p>Care of stumps is a critical daily activity for people with an amputation, and sport performance may place additional wear and tear on both the stump and any prosthesis. It is therefore important for the amputee to pay particular attention to breakdown in the skin of the stump and to any hair follicle infections.</p> <p>It is also important to wear the right thickness of stump sock and to keep the sock dry (particularly after exercise). This is essential to help prevent skin irritations and blisters.</p> <p>Wearing a protective helmet should be considered, particularly during the early stages of sport wheelchair use.</p>	<p>Amputees who use a wheelchair for sport activity frequently tip their chairs over and fall out of them. This is due to their higher centre of gravity (no legs to bring the centre of gravity down lower) and no ability in many cases to brace the body in the chair using their legs.</p> <p>Tipping backwards is particularly common, and for this reason many athletes playing basketball or tennis have small wheels attached to stability arms coming out the back of the wheelchair. When the chairs tip back, these small wheels come in contact with the floor and stop the chairs from tipping.</p>	<p>In some ways, these athletes most closely resemble their able-bodied peers, and it is easier for many coaches to concentrate of the technical aspects of coaching when working with these athletes.</p> <p>Treat these athletes as you would any other athlete you coach.</p>

Open your eyes to the possibilities, for the person with a disability and you!

## APPENDIX 2 – DISABILITY MUST KNOWS - DISABILITY: CEREBRAL PALSY (CP)

**Description:** Injury to different parts of the developing brain during gestation, birth, or early infancy results in muscle weakness, paralysis, poor coordination, and uncontrolled limb movements. The person’s disability can range from very mild to very severe. Although most individuals with CP have the same intelligence as individuals without a disability, some may also have an intellectual impairment.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Safety considerations	Special considerations	Recommendations to coaches
<p>CP may affect the arms, legs, trunk, or head, and may affect one side of the body more than the other or some limbs more than others. This disability affects all people differently.</p> <p>Some people with CP can run, walk and talk, some are in wheelchairs, and others have speech impediments.</p> <p>There are three major types of CP. <b>Spastic CP</b> is characterized by weak muscle tone, poor coordination, and muscle contractures that make affected limbs “stiff”. <b>Athetoid CP</b> is characterized by almost continuous uncontrolled, purposeless movements that may involve the face and tongue as well as limbs. <b>Ataxic CP</b> is characterized by poor balance, uncoordinated movements, and a lack of spatial awareness.</p> <p>Lack of coordination and movement control does <i>not</i> mean that the athlete is less intelligent than other athletes.</p>	<p>CP athletes engage in a wide range of sports, with higher participation in swimming, basketball, cycling, bocchia, soccer, and track and field.</p> <p>Lack of coordination and difficulty with rapid purposeful movements makes high level participation in ball sports or other sports with fast movements difficult.</p> <p>Since this condition is almost always present from birth (or very early in life), overprotective parents and caregivers may not permit young children with CP to engage in the full range of childhood activities that develop sport-related skills. It is therefore important to expose individuals with CP to a wide range of sport-related activities.</p>	<p>CP athletes benefit from sport participation physically, socially, and psychologically.</p> <p>Successful sport participation increases self-esteem and opens up additional possibilities for social interactions.</p> <p>Water-based sports in which the water supports body weight reduce the balance and coordination symptoms of the disability.</p> <p>Sport participation may improve balance and coordination, and systematic stretching activities may improve range of movement in affected limbs.</p>	<p>Since balance is often affected, falling is an ever-present risk for many CP athletes, and care should be taken to remove as many obstacles from the environment as possible.</p> <p>Situations in which the athlete is required to make rapid controlled movements to avoid collisions with other participants or objects should be avoided or undertaken with extreme care.</p> <p>Climbing, bike riding, and similar activities should be approached slowly and with caution, using appropriate protective equipment.</p>	<p>Stress, fatigue, and even hunger can have a large effect on the extent to which CP impairs movement and learning. Calm, well-rested, and well-fed athletes learn best. Care should be taken to allow the CP athlete to attempt new skills where they will not be the centre of attention.</p> <p>Despite historical concerns that resistance training might increase spasticity, the experimental evidence suggests that resistance training can improve movements of daily living, provided adequate stretching is also part of the training program.</p> <p>People who suffer head injuries that affect motor skills can be classified using a similar system as the one employed with CP athletes.</p>	<p>Athletes with CP have difficulty learning skills using methods in which they have the whole skill demonstrated to them and are then asked to copy that skill. For optimum learning, they need the skill to be broken down into very small steps and they need to master each step before continuing.</p> <p>Do not continue trying to teach a new skill when the athlete is fatigued, excited, or overly frustrated</p> <p>Some athletes with CP have speech difficulties that can make communication difficult, which can frustrate the coach, who wants to understand the athlete but cannot. Although this may be a new situation for the coach, it is a familiar situation for the athlete. Don't pretend to understand if you don't, ask the athlete to repeat what was said, and, if necessary, get help from the athlete's family, friends, or caregiver.</p>

See the person, not the disability!

## APPENDIX 2 – DISABILITY MUST KNOWS – DISABILITY: BRAIN INJURIES

**Description:** Acquired Brain Injury (ABI), Traumatic Brain Injury (TBI) and Hemiplegia are designations for disabilities resulting from damage to the brain.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Recommendations to coaches
<p>ABI is the result of various non-traumatic but damaging conditions of the brain such as tumours or blood clots.</p> <p>As the name implies, TBI is caused by a trauma to the head.</p> <p>Both conditions may cause temporary or permanent damage to the brain due to pressure from swelling or direct damage from the trauma. Depending on which part of the brain was damaged, a person who has experienced a brain injury may be affected in motor control (sometimes affecting speech), personality, and/or cognitive abilities.</p> <p>Hemiplegia involves paralysis or partial paralysis of one side of the body. It may be caused by a variety of factors including stroke, head trauma, or cerebral palsy. The extent of involvement may vary or only be noticeable with increased activity.</p>	<p>Persons with ABI or TBI may have poor balance, uncoordinated movements, and/or a lack of spatial awareness resulting in difficulty walking, as well as impulsiveness or poor judgment. Lack of coordination and difficulty with rapid purposeful movements makes high level participation in ball sports or other sports with fast movements or rapid decision-making difficult.</p> <p>ABI and TBI athletes whose motor skills are affected can be classified using a similar system as the one employed with CP athletes.</p> <p>Persons with hemiplegia often have movement patterns present in the arm and leg. Typically, this includes flexion in the arm and extension in the leg. There may also be trunk strength and coordination deficits that cause the person to lean more to one side. Due to the difference in musculature on different sides of the body, activities that require a lot of balance may pose certain difficulties as the athlete may have a tendency to compensate with the strong side.</p>	<p>Successful sport participation increases self-esteem and opens up additional possibilities for social interactions.</p> <p>Sport participation may improve balance and coordination, and systematic stretching activities may improve range of movement in affected limbs.</p>	<p>Encourage them to educate you about what they can and cannot do, and work slowly to extend the intensity, duration, and complexity of their athletic activities.</p> <p>For ABI and TBI athletes who have motor disabilities, many of the strategies recommended for athletes with cerebral palsy are applicable.</p> <p>For ABI and TBI athletes whose personality or cognitive abilities are affected, collaborate with the athlete, parent(s) or guardian(s) on behavioural and supervision needs. Where necessary, implement some of the strategies recommended for athletes with an intellectual disability.</p>

Understand the disability through communications and awareness.

## APPENDIX 2 – DISABILITY MUST KNOWS: DISABILITY: SENSORY IMPAIRMENT

**Description:** In sport terms, the two most prominent sensory impairments are loss of sight and loss of hearing.

Key characteristics	Implications for sport participation	Benefits of sport and physical activity	Safety considerations	Special considerations	Recommendations to coaches
<p><b>Blind/Low vision</b> Loss of sight may be total or partial, and with some conditions, vision may be progressively lost. Blindness may be congenital or acquired. Individuals born blind, or who lose their vision before fundamental skills have been learned, need to learn differently (and take much longer to learn sport skills) than people who learned the fundamental running, jumping, catching, and kicking skills before losing their sight.</p> <p><b>Deaf/Hearing impaired</b> Many individuals who are deaf do not consider themselves to be disabled, but rather consider themselves to be members of an alternate culture – one that uses a different language (usually American Sign Language) for communication. Many individuals with hearing impairments use a hearing aid.</p>	<p>Athletes who are blind require the support of guides or pilots in some sports, and the trust relationship between the athlete and his or her guide is of great importance.</p> <p>Many deaf athletes compete in a very wide range of able-bodied sports, and in addition take part in events like the Deaf Olympics. Although participation in most sports presents no problem, accommodations have to be made to ensure that athletes who are deaf (for example, those who cannot hear a whistle) can receive and understand decisions made by referees and other officials Coloured flags can be a useful way to do this.</p>	<p>There is considerable evidence that children and youth who have visual impairments or are blind have lower levels of fitness than their able-bodied peers, while at the same time needing to use more energy in activities of daily life. In addition, sport participation may improve balance and coordination as well as cardiovascular health.</p> <p>People who are deaf or who have a hearing impairment benefit from sport in the same ways as people with no disability</p>	<p>Athletes who are blind or deaf need well-established alternate signals to alert them to any dangers. It is particularly important to have them clearly understand a “stop immediately” signal, so that in the event of a developing situation they can be alerted and prevented from continuing into danger.</p> <p>In the case of contact activities, athletes with a hearing impairment who are involved in mainstream sport may not be able to benefit from verbal warnings or other messages from teammates or from the coach, and alternate communication strategies need to be developed.</p>	<p>Sensory impairments mean that alternate communication strategies need to be developed by the coach. For athletes who are visually impaired or blind, clear, concise verbal instructions coupled with physically guiding the athlete through the movement works well.</p> <p>Athletes who have been blind from birth or an early age have greater difficulty creating internal visualizations of skills and strategies than do those who lose their sight later in life when sport skills have been acquired.</p> <p>It may take <i>much</i> longer for an athlete who is blind to internalize sport experiences.</p> <p>For athletes who are deaf or have a hearing impairment, clear demonstrations and visual cues work well. Recruiting a volunteer who can sign instructions to the athlete can be a great help.</p>	<p>Don't give in to frustration – using new and different forms of communication can take time to develop. If you relax, the athlete will too, and that will help you both.</p> <p>Make sure that the athletes can use their available senses to best advantage. For blind athletes, try to coach in a quiet environment where they will have least trouble hearing instructions. Keep instructions short, clear and to the point. Make some noise when approaching the athletes so that you don't startle them, and use the athletes' names when speaking to them so that they know they are being addressed and can focus their attention. For athletes who are deaf or have a hearing impairment, ensure that they have a clear view of your face and lips and that background distractions are reduced to the minimum. Speak normally – don't exaggerate your lip and mouth movements; it doesn't help and probably hinders communication.</p>

Don't be afraid to ask questions!