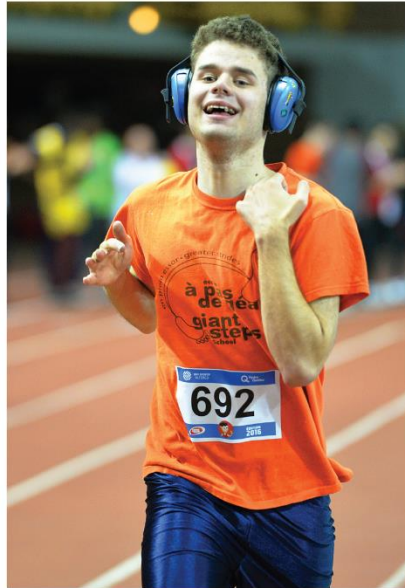




Be Your Best: The Challenge of healthy lifestyles for young with a disability



Guide facilitating interventions in sport and physical activity among young people with an

AUTISM SPECTRUM DISORDER

2014 Edition

Translated 2016

PRODUCED BY

UQTR



Université du Québec à Trois-Rivières



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THE PHOTOS ON THE FRONT PAGE SHOW 3 YOUNG BOY RUNNING: ONE WITH A STICK, ONE WITH NOISE PROTECTIVE EAR MUFFS AND ONE PREPARING FOR A LONG JUMP. THE PHOTO ALSO SHOWS A HOCKEY TEAM SITTING AND WAITING IT'S TURN TO PLAY.

THE PICTURES PRESENTED IN THIS GUIDE WERE TAKEN AS PART OF THE DÉFI SPORTIF ALTERGO . THEY DO NOT NECESSARILY REPRESENT YOUNG PEOPLE WITH THE DISABILITY OR THE DISORDER WHICH IS THE SUBJECT OF THIS GUIDE

THANKS TO JEAN-BAPTISTE BENAVENT, FRANÇOIS LACASSE AND ALAIN RAKOTOMANANA FOR THE PICTURES PRESENTED ON THE FRONT PAGE AND THROUGHOUT THE GUIDE.

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INTRODUCTION

There are many benefits to sport and physical activity¹. However, young people with functional limitations may be restricted in their participation in sport and physical activity². This includes young people with autism spectrum disorder^{3,4}.

In recent years, the prevalence of autism spectrum disorder (ASD) has risen worldwide^{5,6}. According to many studies, one in 100 people has autism spectrum disorder^{7,8}. This increase may be due to many factors, including better screening and certain environmental conditions. In 2013, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) amended the diagnostic criteria of its previous edition⁸. Several disorders that were once distinct are now listed under “autism spectrum disorder”, which includes autism, Asperger’s syndrome and pervasive developmental disorder not otherwise specified⁸. Moreover, the fact that the proposed new criteria are more specific should help reduce the number of new diagnoses of ASD⁹.

The research project “Be Your Best: adopt a healthy lifestyle and good eating habits” described the situation of these young people in schools in Québec in 2012 using telephone surveys. It appears that young people with ASD account for 20% of young people with functional limitations in schools¹⁰, making it the most common disorder in this environment.

Also, young people with ASD are more likely to become obese because of the social, physical and behavioral difficulties they face^{11,12}. A young person with ASD is 40% more likely to be obese than a young person without this limitation¹¹. This may be due to a combination of a lack of physical activity and unusual and selective eating habits. For this reason, it is important to identify the effects of sport and physical activity, the various constraints young people sometimes face during these activities, and ways to overcome these constraints.

This guide — developed using the literature and interviews with young people, parents and professionals — aims to equip individuals dealing with young people with ASD. A total of 10 interviews were conducted with 4 young people, 3 parents and 3 professionals. These interviews support the literature and provide ideas and means to encourage sport and physical activity for these young people.

1. SPORT AND PHYSICAL ACTIVITY WITH AUTISM SPECTRUM DISORDER

Before demonstrating the importance and various effects of sport and physical activity, it is important to list the characteristics of young people with ASD.

1.1 Characteristics of young people with autism spectrum disorder

According to the Diagnostic and Statistical Manual of Mental Disorders, autism spectrum disorder is diagnosed based on 5 criteria:

- persistent deficits in communication and social interactions in various contexts;
- repetitive behaviour, activities and interests (can be manifested as repetitive movements, insistence on routine, restricted, fixated interest, hyper or hyporeactivity to sensory input);
- these symptoms must be present since early development;
- these symptoms cause impairments in social, occupational and other areas of functioning;
- these disorders are not caused by intellectual disability or developmental delay⁸.

Other disorders may also be associated with ASD, such as mental retardation, epilepsy, disturbed sensory perception, difficulties performing movement, obsessive compulsive disorder, aggressiveness and self-harm¹³. Up to 80% of young people with ASD also have significant motor limitations^{14,15}.

However, despite these criteria, ASD is manifested differently in each person. The disorder is aptly named; a spectrum of manifestations varies according to age, cognitive skills, learning, and experiences¹⁶. ASD can be diagnosed as early as 18 months⁶. It is a lifelong condition that families and people close to the young person must learn to cope with⁶. This disorder affects verbal communication since a person may have difficulty holding a conversation, may not respond to his or her name and may seem hard of hearing¹⁷⁻¹⁹. It also affects non-verbal communication because a young person with ASD may seem to avoid eye contact, might not smile, and may have difficulty using their finger to point at something when they are young¹⁷. These symptoms have an effect on a social level seeing as the person with ASD may have difficulty interacting with others, sharing emotions, understanding how others think and feel^{16,17}. These symptoms influence participation in sport and physical activity⁴, especially activities involving interaction with peers^{20,21}.

Resistance to change and the importance of routine are also factors to consider when learning to interact with people with ASD¹⁶. For families, simply planning summer vacation requires long-term preparation to prevent the young person with ASD from experiencing stress or anxiety²².

1.2 Sport and physical activity for young people with autism spectrum disorder

Sport and physical activity provides interaction opportunities that are different than those in school and family environments. Studies have shown that physical education classes and organized activities allow young people to interact, to come into contact physically either intentionally or unintentionally, and to develop team strategies^{23,24}. Through these activities, young people can acquire many skills that can lead to repercussions in other areas of their lives²³. It is therefore important to facilitate the integration of these young people in sport and physical activity. The benefits of these activities are described in the following section and the means to optimize the participation of young people with ASD are presented in the following pages.



François Lacasse © Défi sportif AlterGo 2016

The photo shows a boy swimming.

2. BENEFITS OF SPORT AND PHYSICAL ACTIVITY

For a number of years, physical activity has been known to have health benefits for individuals, especially children and adolescents²⁵. Participating in sport and physical activity has physical, psychological, cognitive and social benefits for everyone, including young people with ASD^{1,3,26-30}. The following paragraphs will provide more details about these benefits.

In addition, the interviews conducted with young people with ASD, their parents and professionals revealed many benefits to sport and physical activity. Table 1 shows the main benefits documented in the scientific literature and interviews.

Table 1. Benefits of sport and physical activity

Areas	Benefits
Physical	<ul style="list-style-type: none"> Improves endurance and muscle strength Results in weight loss Boosts energy Improves balance, agility, coordination and fine motor skills Reduces hypersensitivity
Psychological	<ul style="list-style-type: none"> Boosts self-esteem Improves management of impulsivity, anger and aggressiveness Allows the young person to develop
Cognitive	<ul style="list-style-type: none"> Enables discipline Enables one to achieve goals and success Develops strategies Improves listening skills and concentration Reduces inappropriate behaviour Develops mental flexibility Improves problem-solving skills Promotes better use of working memory
Social	<ul style="list-style-type: none"> Provides social skills Allows the young person to participate in various activities Creates situations where the young person must interact and communicate with other young people on the team

15,24,25,27-29,31-37

2.1. Physical

From a physical perspective, especially on a sensorimotor level, many studies have shown that sport and physical activity can improve many abilities^{25,27-29}. In fact, participating in such activities helps improve endurance and muscle strength²⁷⁻²⁹. It also plays a role in weight loss^{1,25}. Participating in sport and physical activity also boosts energy^{27,28}.

For a clientele with ASD, it improves abilities such as balance, agility, coordination and even fine motor skills^{15,31,36}. Benefits include improved sensory skills, such as a decrease in sensory hyperresponsiveness^{15,32,37}. This can be demonstrated by a better tolerance to touch, crowds and noisy environments in young people with ASD³⁷.

2.2. Psychological

From a psychological perspective, participating in sport and physical activity can contribute to the development of a positive self-image, which in turn improves self-esteem and self-confidence in young people³³. Participation in sport and physical activity can help manage emotions such as impulsivity, anger and aggressiveness^{29,30}. Therefore, this activity time is used as an outlet, a moment of release to achieve a state of relaxation and both physical and psychological well-being³³. Sport and physical activity can also contribute to the development of autonomy and independence²⁷⁻²⁹.

2.3. Cognitive

Sport and physical activity also has cognitive benefits. Participating in such activities enables discipline and provides opportunities to achieve goals and to be successful²⁷⁻²⁹. It also provides an opportunity to develop strategies alone and as a team²⁷⁻²⁹. The various instructions given during sport and physical activity as well as the partners involved in the activity help develop listening skills and concentration^{29,30}. It also fosters the development of mental flexibility¹, problem-solving skills and better use of working memory^{19,36}. These activities also decrease inappropriate behaviours³⁸.

¹ Mental flexibility is the young person's ability to switch tasks or strategy as needed, while working memory is the ability to remember the information needed for an activity while it is taking place.

2.4. Social

Team sports and physical activities take place in a context that somewhat resembles a micro-society where young people can learn to improve their ability to interact with their peers^{24,29,30}. This environment fosters the development of responsible attitudes and behaviours because the young person learns to build healthy relationships, get along with teammates, compete against an opponent and work as a team²⁴. Thus, the young person learns to communicate adequately with others, to open up to others and to develop more appropriate social interactions. In short, engaging in sport and physical activity helps learn how to live in society because it allows one to live experiences with others, to assert oneself, to communicate, to feel valued, to be part of a team, and to feel useful and accepted.

For young people, participating in sport and physical activity provides opportunities that can affect areas beyond the chosen activity²³. However, despite these benefits, young people with ASD may face constraints relating to their limitations, the physical and social environment of the activity or to sport and physical activity itself.



The photo shows a girl doing karate.

3. CONSTRAINTS TO PARTICIPATION IN SPORT AND PHYSICAL ACTIVITY

Participating in sport and physical activity has various benefits^{23,27}. However, some constraints may affect participation in these activities. The next few lines provide details about the constraints relating to the characteristics of young people with ASD, those relating to the physical and social environment as well as those relating to the activities themselves. These constraints have been described both in the scientific literature and the different types of interviews conducted in this study.

3.1 Constraints relating to the characteristics of autism spectrum disorder

Constraints relating to the characteristics of ASD are mainly related to communication, social interactions and repetitive, obsessive and compulsive activities^{8,13}.

Associated disorders can also cause constraints to participation in sport and physical activity. Young people with ASD may face constraints to performing an action in terms of comprehension, paying attention to the instructions, expectations or strategies to develop¹³. In the same vein, a professional described the challenge of team sports:

“Team sports are really complex; playing a team sport for students, they don’t understand, they’re so individual...I throw the ball is ok, but what’s this about passing the ball to someone else...”

Young people may also have limitations in terms of gross motor skills, either a lack of strength, coordination or balance. They might also not move as quickly as other young people in the group without limitations³⁰. Difficulty performing movements, also called poor praxis or dyspraxia, may also be present in these individuals. Often perceived as clumsiness, they appear, for instance, in the form of the inability to correctly imitate movements or perform them on verbal command^{39,40}. However, the signs of ASD are manifested differently in everyone, so a young person may not have any motor deficiencies or poor praxis but have difficulties in other areas. A parent with two autistic children said it very clearly in this excerpt:

“His brother is very motor, unlike [...] usually gross motor skills are so- so in autistic people...But me [Name of boy] could be part of the tactical squad of [Name of city] as Spiderman...our activities are more motor, we go to the park, we climb, jump, turn...there are no difficulties, it’s just that...the temperament kicks in and sometimes things happen and then...it escalates and explodes”

On a sensory level, young people with ASD may react strongly to texture, noise, bright light sources, certain smells and flavors, and can even react to changes in speed or direction of the head and body^{8,13,19,38,41}. A parent supported this by sharing his son's different experiences:

"For his [karate] uniform, we had to wash it like 50 times so it would be soft enough for him to want to wear it...swimming, we tried and it doesn't work because he can't stand the bathing cap and at the pool they have a really hard time understanding that he can't use a bathing cap...sometimes he can't do classes because of the equipment"

Brewster and Coleyshaw (2011) add the need for consistency, predictability and safety of young people as barriers to participation in sport and physical activity. A professional explained this in a situation where young people with ASD don't mix with others at school during activities:

"They don't mix with others, all the extracurricular activities were presented at the beginning of the year and it's not very popular in my class, they didn't really go...we told them we would find ways, that we could support them...Maybe first of all, because they're not really interested in what's being offered, maybe also because it's with people they don't know, they don't really know when facing the unknown and in front of many people, and it's a big school, there are always people everywhere, I think that leaving that small environment where they feel secure, they have a bit of a hard time with that"

Similarly, a young person added:

"[A negative aspect] it's more at the beginning, when you don't really know the sport, and not many people show you what to do, that's more irritating...it's the only negative aspect, at the beginning...when you're learning a sport you don't know"

Age is also a constraint but it is not related to ASD. In fact, just like young people without functional limitations, teenagers with ASD participate less in physical activity than younger children^{4,21,30}.

Table 2 shows a summary of the disorders that may be associated with ASD and that may act as constraints to participation in sport and physical activity.

Table 2. Summary of constraints to participation in sport and physical activity due to characteristics of ASD

Components of disorders	Examples of difficulties
Motor aspects (coordination, dissociation, balance, muscle tone, fine motor skills, relaxation)	Global, eye-hand and eye-foot coordination Endurance and agility Moving from one place to another Manual preference Imitating simple and complex movements Performing or reproducing movement Automatization of movements Planning and organization in terms of time, space or task
Cognitive	Identifying and applying problem-solving strategies Adapting to change and new things Possible fears, opposition or agitation Cognitive rigidity
Communication	Integrating verbal and non-verbal communication Making eye contact Understanding gestures, body language and facial expressions Understanding the context Smiling
Sensory perception	Hypo or hypersensitivity to heat, cold, texture, colour, light, sound, smell, changes in position, speed or direction of head and body
Social interactions	Interacting with others Holding a conversation (initiating it, responding to interactions) Sharing interests and emotions Adapting behaviour to social contexts Imaginative play Interest in peers
Other	Mannerisms Stereotypical behaviour

8,16,32,37,38,40-45

Despite these constraints, young people with difficulties in various areas do not have a limited interest in participating in sport and physical activity ⁴⁵. Constraints may arise from the physical or social environment rather than from the young person. The following section explores the constraints to participation in sport and physical activity relating to the physical and social environment.



Jean-Baptiste Benavent © Défi sportif AlterGo 2016

The photo shows a boy running.

3.2 Constraints relating to the physical and social environment

Young people with ASD and their families have less opportunities to participate in sport and physical activity²¹. This is in part due to the young person's limitations but also to obstacles in the physical and social environment.

Issues regarding the physical environment are mainly obstacles relating to sensory difficulties, whether it be texture, light or noise within an area³². Furthermore, analyzes of interviews conducted with parents and professionals are along the same lines. A professional explained this in the following excerpt:

“But when you're autistic you don't necessarily have limits, you don't have a physical disability so you don't need an access ramp and stuff like that, but sometimes, I don't know, just the neon lights on the ceiling are overwhelming, it's not designed with them in mind. They seem physically normal but they still have everything sensory, it can be difficult”

Although the physical environment can be a constraint, it appears that for people with ASD, obstacles lie more with the social environment. The reactions of coaches, teachers and other young people to the behaviour of young people with ASD are determining factors in this context.

Coaches and teachers are among the main individuals to take part in the young person's participation in sport and physical activity. Therefore, they are influential people in the young person's participation in these activities. Due to a lack of openness, knowledge, time or resources, a coach might not welcome a young person with ASD³⁸. A parent showed this when describing their efforts to sign-up their child for swimming lessons:

“I called all the pools and often, to be allowed to a private or semi-private class at the pool, you have to have already taken a group class...I try to get them to understand that we have to do it the other way around, two or three private or semi-private classes so he gets to know the environment, how it works, and then take a group class, but for them, private or semi-private classes are a privilege you get if you've taken the group classes. They don't understand anything even if I explain that he needs to start the other way around...so he gets to know the place, the calm, the environment...we start in swimming with a large class filled with people, three courses at once, it was a shock right from the start but they never wanted to give me the opportunity”

Peers on the team also influence the participation of young people with ASD in sport and physical activity³⁰. The study on determining factors showed that during 47% of observation periods, young people without limitations were distant towards young people with ASD⁴⁶. Other members of the regular group may become intolerant and even cruel because of how difficult it is for the young person to function like the others^{20,21}. A young person described an experience along the same lines:

“And also there was something that I didn’t think was fun at all...there was a guy in baseball who told me “we LOSE because of you”...And it wasn’t because of me”.

A parent stated that his child was in a similar situation:

“I know that soccer this summer was very difficult. One wasn’t kind...But it came from the parents’ attitude. The mother was always apart. [She would say] “Our kids were crazy”, “just weird” “they were this, they were that”

The integration of young people with ASD may also not be done correctly. During the second phase of the "Be Your Best" project, visits to regular schools helped reveal that the majority of teachers observed knew little or nothing about their students' disabilities⁴⁶. Parents and young people are not always aware of the limitations of the young person with ASD in the group. A parent described this type of situation when his child was integrated in a regular swimming class:

“During swimming class he starts to yell, scream, have disruptive behaviour and you have parents who are watching, who witness all that, that’s also a serious negative aspect...it had an impact because he [the young person] he doesn’t realise it but we don’t like it...you have parents who look at the child and “oh my God he’s disrupting the class” and the other parents also pay for their child so when they see that the instructor is stuck with your child and isn’t paying attention to the others they give you dirty looks”

The parents interviewed agreed that they have to put in a lot of effort either to find an activity, create it themselves, meet the coaches, or even accompany their child during the activity. Obviously, these parents may feel deprived or exhausted because of all these efforts or constraints. A mother expressed this clearly in the following excerpt:

“Those are our flaws [the parents] it’s often then when you have disabled children that, well, after a refusal you turn around and you live with the rest because the effort, the additional work that it requires, to find something, well you just don’t have the energy...I love my children...often we find ourselves really helpless, we don’t know where to turn to. You need an open door but to find the door, you need to knock...it’s hard work sometimes”

Table 3 presents a summary of constraints relating to the physical and social environment that were mentioned in the various interviews or documented in the literature.

Table 3. Summary of constraints relating to the physical and social environment that affect sport and physical activity among young people with autism spectrum disorder

Individuals involved	Examples
Professionals (coaches, teachers, educators, etc.)	Too focused on competition Lack of openness Lack of knowledge Lack of resources
Peers	Intimidation Lack of knowledge Lack of awareness Inadequate integration of the young person with ASD
Parents	Lack of participation in sport and physical activity Lack of time Lack of energy Lack of resources
Other	Financial need Availability of activity Type of activity Transition from elementary to high school Lack of support

20,21,30,32,34,38,47

Despite environmental constraints, sport and physical activity can, by its very nature, be restrictive and limit the participation of young people with ASD. This avenue will be explored in the following section.

3.3 Constraints to participation in sport and physical activity

In addition to constraints resulting from certain characteristics of young people with ASD as well as the physical and social environment, sport and physical activity itself may include constraints that prevent young people from participating⁴⁸.

Indeed, a sport or physical activity that is too difficult or not well-adapted to the abilities of the young person with ASD will undoubtedly limit the participation of the latter in the activity⁴. An activity may be too difficult when it involves, for example, elaborate motor sequences that are difficult to master, material that is difficult to manipulate, or many rules to understand and remember^{13,36}. Even with good physical and motor abilities, a young person with ASD may find it difficult to participate in a sport or physical activity when the intensity is too high or the context is too competitive^{21,38}. A mother expressed this very well for her son who has no motor limitations:

“He was very disappointed about that because he was really motivated to go to soccer. [He] played at school and then he wanted to learn how to play but I think he needs to play, to have fun, let loose; I think too much was expected of him.”

In addition, an activity that is too long can really decrease the young person’s interest and level of participation³⁶. Sport or physical activity with high social demands such as the presence of ten teammates rather than five may also affect the commitment of the individual with ASD¹³.

Finally, a sport or physical activity that does not meet the interests or preferences of the young person is also a major constraint^{30,38}. The choice of activity can then be a guarantee of success. A parent described his son’s integration in a regular karate class that clearly demonstrates possible adjustments:

“Karate is a regular class. At the beginning, there was an assistant in class for 6 months with pictograms. He had his “time timer” for the time, for the course sequence. Now it’s over and he no longer has an assistant, he doesn’t need pictograms either...but for sure at the beginning we had to work with the organization. He started a private class [then] semi-private but now he’s really with other children his age. There is no more adaptation now but we had to do it gradually.”

3.4. Means to reduce constraints

Interviews and scientific literature have revealed facilitators and means to reduce the constraints to participation in sport and physical activity for young people with ASD.

The following tables present strategies relating to the social environment, the choice of the type of activity as well as communication conducive to facilitating the participation of young people with ASD.

Firstly, in terms of the social environment, the proposed measures are aimed at various groups: professionals, peers, parents and others close to the young person. The measures introduced are as much about raising awareness of the needs of young people with ASD then they are about strategies to overcome their difficulties. A parent explained it clearly in this excerpt:

“What’s important is the approach, it’s really understanding the issue because in any case...you can have two autistic people next to one another but they have a very unique way of learning...Getting to know the issue is also important, having guidelines...raising awareness, it’s really in terms of awareness.”

Table 4 shows a summary of the means suggested for each group.

Secondly, suggestions are made to guide the choice of an activity best suited to the reality of a young person with ASD. Factors to consider when choosing an activity relate to the nature of the activity, the context and the level of difficulty, all of which are based on the tastes and interests of each young person. A parent showed how a soccer coach adapted his activity in this excerpt:

“They go touch the picture of the super hero and come back. In the end...the soccer activity is the same. The soccer coach told me “I do exactly the same thing with neurotypical children, but for them I add a more motivating component”...He adds a theme or something that speaks to them. They’re kids who often have fixations. He asks the parents “what does your child like best?”...He really integrated the children’s’ fixations, their major interests.”

Table 5 summarizes the suggestions in terms of choice of activity.

Finally, communication strategies are introduced, which remains a challenge for many young people with ASD. Table 6 presents communication strategies to adapt the presentation of the activity so the young person with ASD understands it better.

Table 6 shows examples of communication strategies that can be used.

Table 4. Means to reduce constraints relating to the social environment

Individuals involved	Means
Professionals (coaches, teachers, educators, etc.)	<p>Know the young person's strengths and difficulties, especially motor and sensory issues.</p> <p>Know the young person's interests and focus on their strengths</p> <p>Use communication strategies or learn those used at home</p> <p>Be consistent in your requests and expectations</p> <p>Recognise success, no matter how small</p> <p>Use videos (YouTube, for example) or pictograms to complement learning activities</p> <p>Discuss with the parent (before or after the activity)</p> <p>Listen to the young person, ask permission before touching or helping them</p> <p>Give examples of the activity to be completed</p>
Peers	<p>Encourage the presence of friends in the group</p> <p>Educate other young people in the group about ASD</p> <p>Give examples of activities to participate in</p>
Parents	<p>Provide an explanation sheet that describes your child's strengths and difficulties</p> <p>Discuss with the professional (coach, teacher, educator, etc.) and encourage them</p> <p>Inform the education or training professional of communication strategies used</p> <p>Determine acceptable and inappropriate behaviour</p> <p>Indicate which strategies to use during inappropriate behaviour</p>
Other	<p>Educate all members of personnel about the reality of people with ASD</p> <p>Contact organizations who work with young people with ASD</p> <p>Teach the young person to control their behaviour to reduce the help needed during the activity</p>

19-21,30,32,34,38,40,41,47,49-53

Table 5. Means to reduce constraints relating to the sport or physical activity

Characteristics of the activity	Means
Nature	<p>Choose an activity according to the young person's interests and preferences (and not according to possible social opportunities)</p> <p>Consider the young person's sensory and motor issues when choosing an activity</p> <p>Limit or avoid situations that are too demanding or stressful for the young person</p> <p>Depending on the young person's abilities, choose an activity according to the material (level of complexity of manipulation, size)</p> <p>Structured and predictable activities may be beneficial in some cases, for example martial arts and console games</p> <p>Choose the activity according to its possible benefits, for example:</p> <ul style="list-style-type: none"> - Water activities to improve motor skills - Martial arts to decrease stereotypical behaviour and improve self-management - Equestrian activities to improve sensory profile - Activities on Nintendo Wii console to improve cognitive skills
Context	<p>Promote a recreational context rather than a competitive one</p> <p>Prioritize individual activities, activities in dyads or very small groups or gradually increase the number of participants</p>
Level of difficulty	<p>Place the young person in a group suitable for their age but also according to their abilities</p> <p>Focus on progressive learning</p> <ul style="list-style-type: none"> - Gradually increase the level of difficulty of the activity, adjust the activity according to the young person's abilities (e.g.: simplifying instructions) - Increase the level of difficulty according to progress, ease and level of competence

12,15,19-21,30-32,36,37,40,41,48-50,52,54,55

Table 6. Communication strategies

Communication strategies	Examples
Get the young person's attention	<ul style="list-style-type: none"> Use the young person's name Make eye contact if possible Control background noise Support the message using gestures and mimes
Adapt the message, explanations, and learning activities	<ul style="list-style-type: none"> Decrease the amount of information Give one simple instruction at a time Use concrete, familiar language Speak more slowly Demonstrate Avoid long explanations Use concrete information Stick to a routine
Check the young person's verbal comprehension	<ul style="list-style-type: none"> Allow time for the person to understand and answer the question Allow the young person to repeat what was said Ask questions to check comprehension
Reformulate explanations and concepts taught	<ul style="list-style-type: none"> Use replication, repetition and reformulation when necessary Use visual cues (gestures, writing, drawings, pictograms)
Let the young person express him/herself	<ul style="list-style-type: none"> Use visual aids Encourage the young person to use gestures to complete their message Check your understanding by rewording Encourage all efforts and attempts

12,47,48,51-53,55-57

To conclude this section, it should be noted that although various strategies can be used to support the participation of a young person with ASD, it is important that the young person get experiment with the activity in their own way and at their own pace. Therefore, it is important not to determine too quickly whether or

not the person enjoys the activity even if they appear resistant and ambivalent at the beginning⁴¹. An adjustment period is required.

Finally, these means may not overcome all constraints the young person faces. Indeed, it is important to validate the means we think are most effective with the young person and their family. Because each young person with ASD is unique, customized solutions must often be developed. Thus, many other motor, sensory and cognitive strategies could be used.

Collaboration between all individuals involved (parents, professionals and coaches) remains the key to success of this effort. Community resources in recreation and sports can also contribute in this context. The next section of this guide presents various resources available to support the participation of young people with ASD.



The photo shows boy doing karate. .

4. PROGRAMS AND TOOLS AVAILABLE

There are various tools and associations available to help professionals and parents. They can support the adoption of a healthy lifestyle and participation in sport and physical activity for young people with ASD. Table 7 provides a list of organizations and programs that support participation in sport and physical activity for young people with ASD. Many groups also exist on social media to help individuals dealing with people with ASD. Table 8, on the other hand, identifies the foundations that help families living with someone with ASD.

The document “Guide to resources per region”, created by the “Be Your Best” project, lists various organizations and programs in Québec that support young people with functional limitations and their families. Foundations that support the participation of these young people in sport and physical activity are also included. In addition, a list of organizations and programs per region in Québec that can support the participation of young people with functional limitations in sport and physical activity is also included. This information is relevant to all types of functional limitations. Although this list of resources shows many opportunities for young people to stay active, it is non-exhaustive.

Table 7. Organizations and programs that support participation in sport and physical activity for young people with autism spectrum disorder

Name of the organization or program ²	Website or phone number of the organization or program	Role of the organization or program
Autism Canada Foundation	http://www.autismcanada.org/	Provide information about treatment and resources to families living with someone with ASD Influence health care and government policies
Autisme Québec	http://www.autismequebec.org/ [french only]	Provide services, develop activities, promote and defend the rights of people with ASD and their families
Autisme et troubles envahissants du développement Montréal	http://autisme-montreal.com/en/	Advocate and defend the rights of people with ASD and provides direct services to these people (Montréal)
Centre Didache	http://www.centredidache.com/web/ [french only]	Provide activities for people with ASD in the Montréal area and offer help and support to families
Coup de pouce Jeunesse	514 321-8054	“Break down the barriers of social prejudice towards seniors, teenagers and people with disabilities. Prevent juvenile delinquency. Raise awareness of difficulties encountered by individuals and groups in need among young people. Support services for integration through pairing of people with and without disabilities.” (Montréal)
Fédération québécoise de l'autisme	http://www.autisme.qc.ca/ [french only]	“Engage everyone involved in order to promote the well-being of people, raise awareness and inform the population about ASD as well as the situations of families, and contribute to the increase and dissemination of knowledge”
Société de l'autisme des Laurentides	http://www.autismelaurentides.org/ [french only]	Promotes and helps defend the rights and interests of people with ASD and their families

² Organizations and programs are listed in alphabetical order

FOUNDATIONS

Table 8. Foundations that support the participation of young people with autism spectrum disorder in sport and physical activity

Name of the foundation ³	Website of the foundation	Role of the foundation
Fondation Autisme Laurentides	http://www.fondationautismelaurentides.org/ [french only]	“Provide families with access to respite, leisure and intervention resources”
Fondation Autisme Montréal	http://www.fondationautisme.com/ [french only]	Finance respite care and leisure services that foster the development of the potential and autonomy of people with autism spectrum disorder
Fondation de l'autisme de Québec	http://www.autismequebec.org/?rub=1 [french only]	Offer financial support to organizations and families with someone with autism spectrum disorder

³ Foundations are listed in alphabetical order.

5. KEY POINTS TO SUPPORT PARTICIPATION IN SPORT AND PHYSICAL ACTIVITY

- ❖ Sport and physical activity has physical, psychological, social and cognitive beneficial effects for young people with ASD. These benefits are transferrable to various areas of everyday life.
- ❖ However, young people can face constraints to participation in sport and physical activity that may be due to ASD, associated disorders, the physical and social environment of the activity, or the activity itself.
- ❖ Manifestations of ASD include communication disorders and socialization difficulties as well as repetitive behaviour and restricted inflexible interests. These vary depending on the young person and the severity of the disorder. They may also have sensorimotor difficulties.
- ❖ There are different strategies and means to reduce constraints and improve ways of dealing with young people with ASD. The most important means to remember are:
 - **Know the young person's strengths and difficulties** (e.g. interests, fixations, characteristics, what is acceptable and inappropriate);
 - Choose an **activity and a context that is more likely** to correspond to the characteristics of the young person with ASD;
 - Make sure **coaches have sufficient knowledge of the young person's needs**;
 - **Gradually integrate** the young person in an activity (e.g.: show them ahead of time, have them visit the area, start with private sessions and then increase the number of participants);
 - **Acquire a routine** in the course structure and the exercises presented (e.g.: warm-up period);
 - **Be structured** in the way you convey messages (e.g.: give brief and precise instructions, make sure the young person is looking at you and is attentive);
 - **Encourage consistency** between professionals who work with the young person as well as the strategies used (e.g.: same approach and ways to communicate).

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