



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 a

# VISUAL IMPAIRMENT

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AN INITIATIVE OF



MADE POSSIBLE THANKS TO THE FINANCIAL SUPPORT OF



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THE LOGO OF THE 'LABORATOIRE EN LOISIR ET VIE COMMUNAUTAIRE'

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THE PHOTOS ON THE FRONT PAGE SHOW A YOUNG BOY THROWING A WEIGHT, A YOUNG GIRL BLINDFOLDED IN A GOAL, A YOUNG GIRL RUNNING AND A YOUNG PERSON SWIMMING.

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 activity<sup>1</sup>. Many studies have shown that sport and physical activity has physical, psychological, cognitive and social benefits.

However, young people with functional limitations may be restricted in their participation in sport and physical activity<sup>2</sup>. This includes young people with a visual impairment.

This guide presents a clear analysis of the situation of these young people on a daily basis, specifically of their participation in sport and physical activity. A total of 5 interviews were conducted with 1 young person, 1 parent, 2 professionals, and 1 occupational therapist. These interviews support the scientific literature and provide ideas and means to overcome the limitations these young people face when participating in sport and physical activity.



The photo shows a boy throwing a weight.

## 1. SPORT AND PHYSICAL ACTIVITY WITH A VISUAL IMPAIRMENT

Before demonstrating the importance and various benefits of sport and physical activity, it is essential to establish the characteristics of young people with visual impairments.

### 1.1 Inactivity and visual impairment

Inactivity has a direct effect on the population. It especially affects people with functional limitations, including those with visual impairments. Currently, worldwide, 4% of the population is visually impaired according to the WHO. One third of these people has a sedentary lifestyle<sup>3</sup>.

There are many degrees of visual impairment (Figure 1), from mild visual impairment to blindness, and various types, from impaired central vision to impaired peripheral vision and blurred vision. Visual impairment, defined as the final stage of ocular involvement when therapeutic, medical or surgical resources have been depleted, affects nearly 285 million people worldwide. Of these, 246 million have decreased visual acuity (limit of 3/10 of visual acuity according to the WHO classification, 2012) and 39 million are blind (limit of 1/20 of visual acuity according to the WHO classification, 2012)<sup>4</sup>.

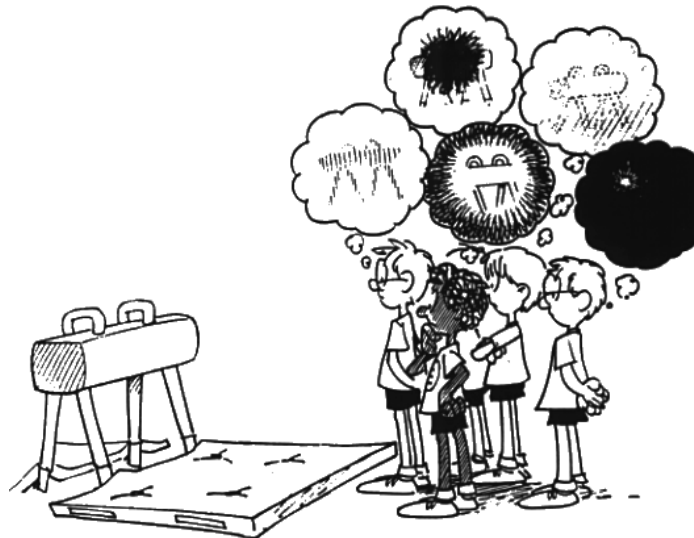


Figure 1: What someone with a visual impairment sees<sup>5</sup>

In the adapted sports system for people with visual impairments, 3 levels of vision are defined based on visual field (quality of vision of details maintained) and visual acuity (vision related to space and movement).

Table 1: Classification system for competitive sports

Class	Classification
B1	Corresponds to no light perception in both eyes. To be more specific, the subject is unable to recognize the shape of a hand at any distance or in any direction.
B2	Refers to subjects who are able to recognize the shape of a hand with visual acuity of 5% and a visual field of less than 5 degrees in the better eye after correction.
B3	Refers to visual acuity between 5 and 10% and/or a visual field between 5 and 20 degrees in the better eye, after correction.

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Visual impairment can lead to difficulties in everyday life. These can be more or less pronounced depending on their severity and the age of onset of decreased vision (congenital or acquired). From a medical standpoint, visual impairment does not impede movement but can affect a person's representation of the world, their movement, and the way they respond to stimuli. It is associated with certain factors such as spatiotemporal difficulties, impaired coordination and equilibration, muscle strength, flexibility and endurance issues, lack of confidence and increased timidity. Although they are general characteristics, these factors cause young people to spend more energy to accomplish everyday tasks<sup>3</sup>.

Young people with visual impairments are often excluded and opportunities to participate are scarce. However, studies on physical activity and quality of life show positive correlations, especially in people with visual impairments<sup>7</sup>. In an integration perspective, we examined the factors that limit the participation of young people with visual impairments in sports.

## 1. BENEFITS OF SPORT AND PHYSICAL ACTIVITY

For a number of years, physical activity has been known to have health benefits for individuals, including children and adolescents<sup>8</sup>. Sport and physical activity has many benefits<sup>1</sup>. Many studies have shown that participating in sport and physical activity has physical, psychological, cognitive and social benefits for everyone, including young people with functional limitations<sup>9-12</sup>. The interviews conducted have revealed many benefits to sport and physical activity. Table 2 shows the main benefits documented in the scientific literature and interviews.

Table 2: Benefits of sport and physical activity

Areas	Benefits
Physical	Improves endurance Improves strength Results in weight loss Boosts energy
Psychological	Boosts self-esteem Improves management of impulsivity, anger and aggressiveness Allows the young person to develop
Cognitive	Enables discipline Enables the achievement of goals and success Develops strategies Improves listening skills and concentration
Social	Allows the young person to acquire 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

9-12



### **1.1. Physical**

Many studies have shown that sport and physical activity can improve many physical abilities<sup>8, 10-12</sup>. In fact, participating in such activities helps improve physical abilities such as endurance and muscle strength<sup>10-12</sup>. It also plays a role in weight loss<sup>1, 8</sup>. Participation in sport and physical activity also boosts energy<sup>10, 11</sup>.

### **1.2. 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 people<sup>13</sup>. Participating in sport and physical activity can contribute to the management of emotions such as impulsivity, anger and aggressiveness<sup>10,11</sup>. 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-being<sup>13</sup>. Sport and physical activity can also contribute to the development of autonomy and independence<sup>10-12</sup>.

### **1.3. Cognitive**

Sport and physical activity also has cognitive benefits. Participating in such activities enables discipline and provides opportunities to achieve goals and to be successful<sup>10-12</sup>. It also provides an opportunity to develop strategies alone and as a team<sup>10-12</sup>. The various instructions given during sport and physical activity as well as the partners involved in the activity help develop listening skills and concentration<sup>10,11</sup>.

### **1.4. 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<sup>10, 11, 14</sup>. This environment fosters the development of responsible attitudes and behaviours because the young person learns to become integrated, build healthy relationships, get along with teammates, compete against an opponent and work as a team<sup>14</sup>. Thus, the young person learns to communicate adequately with others, to open up to others and to develop more appropriate social interactions. In short, participating 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.

## 2. CONSTRAINTS TO PARTICIPATION IN SPORT AND PHYSICAL ACTIVITY

### 3.1 Overprotective family

The first factor that limits physical activity for young people who are visually impaired takes place on a daily basis: the family environment on the one hand, and social representations on the other. Psychomotor stimulation of young people should be done as early as possible so that they can move freely and assimilate information from their environment. Having them often change environments and activities according to their wishes and motivation is important. The more a young person is overprotected, the more his/her sensory perceptions and motor skills are diminished. Many adults think that we should not let a blind young person be exposed to new or unfamiliar situations.

Several studies show that families restrain their children from participating in physical activity<sup>15, 16</sup>. This type of behavior deprives young people of their autonomy. A number of activities are off-limits out of fear that they may face difficulties. A mother explained: *“At first I tended to overprotect my daughter”*; she added: *“I am a mother hen because of her disability.”*

This attitude increases the danger of overprotection, which results in deficits in perception due to a lack of stimulation. When overprotection is maintained over time, it is significantly more difficult for the teenager to try, to dare take the risk of “becoming an adult”. The teenager is then slowly confined to a dependant situation.

In most cases, parents are unaware of the needs of their children regarding physical activity and are concerned about their physical integrity. They fear injury. Others point out that there are no sports careers for their children and underestimate their physical abilities and sport skills. One parent said: *“If my son had preferred a more intellectual activity such as reading, I would have dropped sports because of how difficult it is to find a club.”*

Others feel that teachers are not competent enough and are concerned that their children will be ignored, misunderstood or treated unfairly (grading) in physical education classes or in municipal and university sports clubs. This is even more prevalent among parents of young people with low levels of vision<sup>17</sup> and who think very little of the potential benefits of physical activity.

Overall, they do not necessarily make an effort to ensure that their children are physically active and involved in sports. They see more potential for their children’s success in individual, non-integrated activities that promote fairness than in structured and competitive activities where there is a form of competition between young people<sup>15, 16</sup>. However, it is clear that when family members are active and devote time to their children for sport and physical activity, the level of activity of the latter is superior<sup>16, 17</sup>.

### 3.2 Lack of opportunity and support

A number of parents, teachers, coaches and educators lack knowledge and skills. A parent deplors the lack of openness towards his son's inclusion: *"The recreational centre refused to allow my son to do judo because they did not want to be held responsible in case he fell."* They lack the resources to guide their children towards sports structures and are unaware of the health benefits of sport and physical activity for their children<sup>16</sup>. Although young people who are visually impaired can reap many benefits from sport and physical activity programs, many studies show that society offers them few opportunities and support to participate. The inadequacy of community sports programs, infrastructures and sports facilities, the lack of knowledge and skills of teachers, coaches and educators are the main causes.

Both in school and in extracurricular activities, young people who are visually impaired do not enjoy the same opportunities and support to participate in physical activity than their peers without disabilities<sup>3</sup>. Because they are limited in their participation, their fitness level decreases.

### 3.3 Limited access to school sports

In schools, young people who are visually impaired and who are integrated in health and physical education classes (HPE) with other young people without disabilities don't take part or take very little part in vigorous activities with others. At least 42% of students with visual impairments have limited or no access to HPE because of their "limitations"<sup>3</sup>. According to the Gabriel Deshayes association, which aims to promote sport and physical activity among these young people, several surveys sent to parents of young people with visual impairments in schools in Montréal and Morbihan confirm a lack of sport and physical activity among young people in school, particularly in young girls<sup>18</sup>.

In general, school programs are not adapted to young people with visual impairments and physical education teachers lack knowledge and experience to work with these young people<sup>19, 20</sup>. The following statements reflect this reality:

*"Sometimes, at school, there are sports where I don't play, so I go to a place where there's a ball and a stationary bike. For example, while others play hockey, I use the stationary bike, because it's a sport I can't really play." (Young person)*

*"At school, there are many team sports, and that's good, but teachers should maybe adapt the activities more. But we can't really change that because many people play aggressively and they don't want to change that." (Parent)*

*"There are some sports I can't really play, that are really difficult, like basketball, badminton, baseball, ball games in general, especially team sports, because there are many people. Usually individual sports are good, it's a lot easier." (Young person)*

A study by Lieberman, Houston-Wilson and Kozub (2002) measured the difficulties perceived by teachers when they are responsible for young people who are visually impaired. Teachers (n = 148) from various fields participated in this study and were interviewed on the basis of four questions focusing on the quality of their training, the accessibility of infrastructures and equipment, the objectives of the curriculum in relation to integration, time available and other difficulties. 66% answered that these difficulties are a result of inadequate training and preparation, especially with regards to the physiology of the eye and the various causes of blindness. For 63% and 56% of respondents respectively, a lack of equipment and a lack of time are the main reasons that explain integration difficulties. Finally, 50% experience communication difficulties, a lack of qualification, tend to be overprotective, or report parental overprotection and medical excuses

### **3.4 Limited access to community sports**

Few articles mention the facilities (associations, clubs), infrastructures and equipment accessible to young people with visual impairments. Only a few mention that there are few extracurricular sports facilities that welcome young people with visual impairments. A study also showed that more than half of participants (58.9%) said they did not have the opportunity to be integrated in municipal sports with others<sup>3</sup>. Only some associations specialized in adapted sport offer leisure services and sports competitions, such as the *Association de sports pour Aveugles de Montréal (ASAM)*<sup>1</sup>. They are located mainly in large cities across Québec, such as Montréal. Beyond these boundaries, it becomes difficult to find adapted sports facilities and gather a sufficient number of people to create sports teams. Few sports facilities are adapted and accessible: there is a lack of verbal and tactile signs in gyms, sports facilities, bike paths, forest trails, etc. There is also a lack of financial means to invest in adapted equipment and material.

Although there are only a few, sports associations do exist, but parents are not aware of the structures that allow their children to engage in regular physical activity. Information is the basis of the system and when it is lacking, the system malfunctions. Several studies have shown that young people with visual impairments are not sufficiently aware of the sports activities offered by associations<sup>16</sup>. One parent said: *“I had a really hard time finding information.”*

Yet when we provide information to families, they promote competitive or leisurely physical activity. A study showed that one month after providing a resource manual on sport and physical activity to parents of young children with visual impairments, 39% had increased their level of activity. Although the results are not significant, it seems that families encourage their children to participate more if they are informed about the opportunities available<sup>16</sup>.

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<sup>1</sup> Association in french only : <http://asam.ca/>

Parents also mentioned a lack of time to drive their children or refusing to let them take public transport alone. This also limits their children's participation in sports. In addition to infrastructure issues, a lack of transportation was also mentioned in several studies. The geographical distance from sports facilities can also be problematic in this situation because young people are dependent on public transport or their parents to get to practice.

Finally, each personality is shaped from childhood. Willingness and confidence are essential. Everyone has a different perception of physical activity based on learning and experience. However, it takes great self-confidence to engage in an activity. Many studies agree that young people with visual impairments lack self-confidence and think their skill level is not strong enough to engage in sporting activities<sup>21</sup>. Although few studies confirm it, the expectations and beliefs about sport and physical activity of these young people can be limited, thus affecting their motivation and their involvement in sporting activities<sup>22</sup>. Engaging in sport and physical activity goes hand in hand with great motivation and a goal to reach. Without this goal in mind, the individual loses his or her will when difficulties arise. For young people with visual impairments to overcome the difficulties they will face and to engage in regular sport and physical activity, they will inevitably need to set short, medium and long-term goals that they must always keep in mind.

### **3.5 Means to reduce constraints**

Scientific literature and interviews have identified various actions that individuals dealing with young people with visual impairments can take to reduce constraints to participation in sport and physical activity for students with visual impairments. These actions relate both to the nature of the offer and how rules are adjusted. Table 3 presents a summary of the actions to be taken by the various individuals involved. Table 4 provides a list of different resources available to support this process.

Table 3: Means to support participation

Individuals involved	Actions	Examples
Professionals (coaches, teachers, educators, etc.) and parents	Adapting activities and diversification	In terms of equipment, there is a large number of adapted material or material that can be adapted by involving the complementary senses, hearing and touch: balls with bells, a tactile guide wire, tactile boundaries (ribbons, strings), beepers or loud electronic devices, bells, objects with special textures.
Professionals (coaches, teachers, educators, etc.) and parents	Judging distances, identifying spatial locations and boundaries	Tactile cues such as using a wall, rope or guide to help; counting the number of steps when running; keeping track of the number of arm strokes and lane lines in swimming; finding your way using a mat in goal ball.  Similarly, a small play area will facilitate movements and recognizing a partner, as will reducing the number of players on the field.
Professionals (coaches, teachers, educators, etc.) and parents	Modifying and adapting rules and instructions	Rules should be adapted and simplified when necessary. A beep to mark the end of a game can be used to facilitate cool-down. Safety is a factor to be taken into consideration with this clientele <sup>12</sup> . Moreover, because the young person is very aurally conscious, all physical activity must take place in a calm setting and the educator must place himself strategically.  Activities require a high degree of concentration and alertness which leads to increased fatigability in these young people.
Professionals (coaches, teachers, educators, etc.)	Teaching through touch	Tactile modeling allows the young person to feel the other person's body using touch and to get a feel for the rhythm, direction and precision of the movement; the use of physical orientation allows the young person to negotiate space and to understand the sense of movement.

#### 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 sport and physical activity for young people with visual impairments. Table 4 on the following page provides a list of associations and tools that support sport and physical activity for young people with visual impairments.

The document “Guide to resources per region” 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 listed. 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.



The photo shows a young person being guided by her coach and volunteers of the Défi Sportif AlterGo

Table 4: Associations and tools that support sport and physical activity for young people with visual impairments

Name of the organization or program <sup>2</sup>	Contact information of the organization or program	Role of the organization or program
Association Québécoise des Parents d'Enfants Handicapés Visuels	<a href="http://www.aqpehv.qc.ca/">http://www.aqpehv.qc.ca/</a> [french only]	Provides services to parents of children with visual impairments and serves as a platform for these parents to discuss
Association Sportive des Aveugles du Québec	<a href="mailto:infoasaq@sportsaveugles.qc.ca">infoasaq@sportsaveugles.qc.ca</a>	Aims to “develop participation in sports and to educate the general public and those in charge about the full potential of people living with visual impairments”
Basse vision	<a href="http://www.bassevision.net">www.bassevision.net</a> [french only]	Information website about low vision developed by the <i>Centre d'Évaluation et de Rééducation Basse Vision de la Clinique Sourdille de Nantes</i> (French site)
Fondation des aveugles du Québec	<a href="http://aveugles.org/en/">http://aveugles.org/en/</a>	Supports people with visual limitations by guiding and helping them lead a more independent and active life in housing, leisure and community life
Institut Nazareth et Louis Braille	<a href="http://www.inlb.qc.ca/">http://www.inlb.qc.ca/</a> [french only]	Rehabilitation centre serving people with visual impairments
Regroupement des Aveugles Amblyopes du Québec	<a href="http://www.raaq.qc.ca/">http://www.raaq.qc.ca/</a> [french only]	Ensures, promotes and defends the rights and interests of people with visual impairments through democratic functioning in all aspects of everyday life

<sup>2</sup> Organizations and programs are listed in alphabetical order.



## 5. KEY POINTS TO SUPPORT SPORT AND PHYSICAL ACTIVITY

- ❖ Family members play a key role, which is to provide a stimulating environment that motivates the young person to be physically active every day. Their training is as important as it is for training professionals, so that they can offer a variety of sport and physical activity and adapt them. Friends and people who are close to the young people should also be present to involve them and motivate them to practice.
- ❖ Developing and opening school and community sports programs with the support of the *Institut Nazareth* as well as facilitating access to regional rehabilitation and re-education centres for young people with visual impairments is essential given the growing demand. All professionals working with young people who are visually impaired must multiply experiences with this clientele in order to understand their needs and focus training on adaptations to be implemented as well as appropriate teaching strategies.
- ❖ Interdisciplinarity is an essential part of integrating young people who are visually impaired in a mainstream environment in order to implement adjustments, ways to compensate, and a stimulating and challenging work environment. The set of skills envisaged will lead to the young person's autonomy.
- ❖ The advice of a doctor who specializes in ophthalmology and the visual evoked potentials test is a prerequisite for physical activity. Besides the etiology of the disability, the date and conditions of its onset as well as whether it is stable or progressive are factors that must all be taken into account. Near and distance vision, binocular vision, colour vision, depth perception, sensitivity, adaptation to light and visual field defects should also be assessed
- ❖ Adapting education is a key point when working with young people with visual impairments: descriptive feedback fosters the creation of a mental image and facilitates the acquisition of motor skills.
- ❖ Involving a peer who is responsible for supervising the visually impaired young person during an activity (student-tutor or a para-educator) fosters the young's person participation and involvement in the activity and increases the time spent doing the activity.
- ❖ We need to increase sources of motivation for these young people. Integrating a group, rewards (extrinsic motivation), acquiring a skill, as well as personal enjoyment (intrinsic motivation), are all important sources of motivation for young people with visual impairments.

- ❖ Having fun in sport and physical activity is a key concept to remember.



The photo shows a boy getting ready to throw a weight

## REFERENCES

1. Jeunes en forme Canada: Conduisons-nous nos enfants à adopter des habitudes malsaines ? Le Bulletin 2013 de l'activité physique chez les jeunes de Jeunes en forme Canada. Toronto: Jeunes en forme Canada, 2013.
2. Solish A, Perry A, Minnes P: Participation of Children with and without Disabilities in Social, Recreational and Leisure Activities. *Journal of Applied Research in Intellectual Disabilities* 2010, 23:226-36.
3. Lieberman LJ, Byrne H, Mattern CO, Watt CA, Fernández-Vivó M: Health-related fitness of youths with visual impairments. *Journal of Visual Impairment & Blindness* 2010, 104:349-59.
4. Organisation Mondiale de la Santé: Classification internationale des maladies. 11 ed. Genève: Organisation Mondiale de la Santé, 2012.
5. Conseil canadien des aveugles, Alliance de vie active pour les Canadiens/Canadiennes ayant un handicap: Une vie active par l'éducation physique : multiplier les possibilités offertes aux élèves ayant une déficience visuelle. Ottawa: Conseil canadien des aveugles, 1993.
6. Winnick JP: Adapted physical education and sport. 4 ed. Champaign, Ill.: Human Kinetics, 2005.
7. De Potter JC: Contribution de l'activité physique et sportive au bien-être des personnes déficientes visuelles. *Sciences et sports* 2006, 21:249-50.
8. Janssen I, LeBlanc AG: Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity* 2010, 7:1-16.
9. Auger D, Fortier J: Les bénéfices du loisir. Musée de la civilisation, Exposition 2008. Québec: Laboratoire en loisir et vie communautaire de l'Université du Québec à Trois-Rivières, 2006.
10. Carruthers CP, Hood CD: Building a Life of Meaning Through Therapeutic Recreation: The Leisure and Well-Being Model, Part I. *Therapeutic Recreation Journal* 2007, 41:276-97.
11. Hood CD, Carruthers CP: Enhancing Leisure Experience and Developing Resources: The Leisure and Well-Being Model, Part II. *Therapeutic Recreation Journal* 2007, 41:298-325.
12. Lord E, Patterson I: The Benefits of Physically Active Leisure for People with Disabilities: An Australian perspective. *Annals of Leisure Research* 2008, 11:123-44.
13. Institut National de la Santé et de la Recherche Médicale: Activité physique : contexte et effets sur la santé. Paris: Éditions INSERM, 2008.
14. Le Breton D: Activités physiques et sportives et intégration: aspects anthropologiques. *Empan* 2003, 3:58-64.
15. Nixon II, Howard L: Getting Over the Worry Hurdle: Parental Encouragement and the Sports Involvement of Visually Impaired Children and Youths. *Adapted Physical Activity Quarterly* 1988, 5:29-43.

16. Robinson BL, Lieberman LJ: Influence of a Parent Resource Manual on Physical Activity Levels of Children with Visual Impairments. *Rehabilitation and Education for Blindness and Visual Impairment* 2007, 39:129-39.
17. Stuart ME, Lieberman J, L. , Hand KE: Beliefs about physical activity among children who are visually impaired and their parents. *Journal of Visual Impairment & Blindness* 2006, 100:223-34.
18. Association Gabriel DESHAYES: Guide pratique "Sport et déficience visuelle". Auray: Association Gabriel DESHAYES, 2009.
19. Skaggs S, Hopper C: Individuals with visual impairments: a review of psychomotor behaviour. *Adapted physical activity quarterly* 1996, 13:16-26.
20. Brown CM, Packer TL, Passmore A: Adequacy of the Regular Early Education Classroom Environment for Students with Visual Impairment *The Journal of Special Education* 2011, 46:223-32.
21. Shapiro DR, Moffett A, Lieberman L, Dummer GM: Perceived Competence of Children with Visual Impairments. *Journal of Visual Impairment and Blindness* 2005, 99:15-25.
22. Kozub FM: Motivation and Physical Activity in Adolescents with Visual Impairments. *Rehabilitation Education for Blindness and Visual Impairment* 2006, 37:149-60.