Barriers and facilitators to participation in physical activity for children with disabilities

A systematic literature review

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ABSTRACT

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Children with disabilities need physical activity in order to correctly develop, however, finding an adequate type of physical activity for children with disabilities can be a very complicated issue. Furthermore, trying to include them in an ordinary physical education class is even more difficult. We come across several barriers that impede their proper inclusion in physical activity. In order to enhance children with disabilities’ participation, it is important to know the barriers and facilitators that exist and take them into account. Therefore, the aim of the study is to explore what facilitators and barriers children with all kinds of disabilities can come across in order to get involved in physical activity. By doing a systematic review of articles that explain perceived barriers and facilitators, this paper is addressed to find out the barriers and facilitators children with all kind of disabilities can have. The results show that each kind of disability has different barriers and facilitators. While some disabilities focus more on physical facilitators and barriers, others find more important the logistical ones or the psychological aspects. Answers given from professionals, children and parents are very different and therefore shows a lack of communication between them as well as a need for cooperation and working.

Keywords: Barriers, facilitators, physical activity, children with disabilities, participation.
**Table of Content**

1. Introduction ........................................................................................................... 1
2. Background ............................................................................................................. 1
   2.1. Child ................................................................................................................. 1
   2.2. Disability ........................................................................................................... 1
   2.3. School context ................................................................................................. 1
   2.4. Physical activity .............................................................................................. 2
   2.5. Physical inactivity ............................................................................................ 3
   2.6. Barriers and facilitators .................................................................................. 3
   2.7. Definitions ........................................................................................................ 4
      2.7.1 Adapted physical education ......................................................................... 4
   2.8. Theoretical framework ..................................................................................... 4
   2.9. Rationale .......................................................................................................... 5
3. Aim ........................................................................................................................... 6
4. Research questions ................................................................................................ 6
5. Method ....................................................................................................................... 6
   5.1. Type of study ..................................................................................................... 6
   5.2. Search strategy .................................................................................................. 6
   5.3 Selection criteria ............................................................................................... 7
   5.4. Selection process .............................................................................................. 8
      5.4.1. Title and abstract ....................................................................................... 8
      5.4.2. Full text .................................................................................................... 8
   5.5. Quality assessment ........................................................................................... 12
   5.6. Analysis of articles ......................................................................................... 12
   5.7. Ethical consideration ....................................................................................... 13
6. Results ....................................................................................................................... 14
   6.1. Intellectual disabilities .................................................................................... 15
      6.1.1. Barriers .................................................................................................... 15
      6.1.2. Facilitators ............................................................................................... 16
   6.2. Physical disabilities ........................................................................................ 16
      6.2.1. Barriers .................................................................................................... 16
1 Introduction

The amount of participation in physical activity for children with disabilities is low as reported in articles and therefore, the barriers and facilitators should be revised and taken into account to study and plan an intervention to enhance the participation of children with disabilities in physical activity. In this thesis it will be addressed by a systematic review, the perceived barriers and facilitators children with disabilities have come across and will be discussed how can these barriers be overcome and the facilitators used to enhance their participation in physical activities.

2 Background

2.1. CHILD:

The UN Convention of the rights of the children (1989) defines a 'child' as a person below the age of 18, unless the laws of a particular country set the legal age for adulthood younger. However WHO (2003) defines a child as a person 19 years or younger unless national law defines a person to be an adult at an earlier age.

2.2. DISABILITY:

According to WHO (2011), Disability is a term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Disability is thus not just a health problem. It is a complex phenomenon, reflecting the interaction between features of a person’s body and features of the society in which he or she lives. Children with different kind of disabilities can find it very difficult to integrate in society, to participate in different activities or to take part in physical activities just like their normal developing peers specially due to the barriers they come across while trying to participate.
2.3. SCHOOL CONTEXT:

The UN Convention on the Rights of Persons with Disability (UNCRPWD), in Article 30 refers to physical activity within formal and informal educational institutions. Evidence based on surveys among physical education teachers suggest that Intellectual disability is among the disabilities that pose the greatest challenge when attempting inclusion in their Physical Education classes (Rizzo, 1984; Rizzo & Vispoel, 1991; Downs & Williams, 1994; Hodge & Jansma, 2000; Hutzler, 2003). It is the knowledge and experience that teachers have about how to adapt instruction to the child with disability and to his or her peers and how to adapt tasks, equipment, environmental conditions and game rules that influences their attitude about teaching students with disabilities, and that is one of the foundations of successful inclusion in Physical Education (Kowalski & Rizzo, 1996; Hutzler et al., 2005).

2.4. PHYSICAL ACTIVITY:

According to some researchers, physical inactivity is a global public health problem (Lamarre & Pratt, 2006). Participating regularly in physical activity (PA) enhances body composition (LeMura & Maziekas, 2002), bone health (Bradney, Pearce, Naughton, Sullivan, Bass & Beck, et al., 1998) and psychological health (Trost, 2005) as well as promotes social engagement (Jobling, 2001). Children with disabilities often have delayed gross motor development, less proficiency in balance and coordination and poor cardiovascular fitness compared to their peers with typical development, all of which could potentially be improved by participation in physical activity (Horvat, Pitetti & Croce, 1997). The benefits of sports have been documented frequently and generally include an increase in health and physical fitness and a decrease in secondary conditions (Philpott, Houghton & Luke, 2010). Participation in PA opportunities is a fundamental childhood experience that fosters the psychosocial development of interpersonal skills, self-confidence, and self-efficacy (Special Olympics, 2005). Besides health benefits, sports participation also promotes personal autonomy, community integration and life satisfaction of children with physical disability (Majnemer, Shevell & Law, et al., 2008). Furthermore, physical activity may be a pivotal factor not only in preventing obesity and health risks associated with weight gain but also in promoting healthy cognitive, psychosocial, and physical development in children with special needs. Physical activities provide school-age children with opportunities for enjoyment, relaxation,
recreation, self-enrichment and goal achievement (Coastworth et al., 2005; Passmore & French, 2003; Shikako-Thomas et al., 2012; Wilkes, Cordier, Bundy, Docking, & Munro, 2011). Moreover, it is very useful for building children’s competence, self-determination and identity, as well as for social and personal development. (Coastworth et al., 2005; Passmore & Frenche, 2003; Shikako-Thomas et al., 2012; Wilkes, Cordier, Bundy, Docking & Munro, 2011) and participation in meaningful physical activities correlates with children’s wellbeing (Adolfsson, 2011). Regular participation in physical activity develops body composition, skeletal health, and contributes to the prevention or delay of chronic disease. It also improves several aspects of psychological health including self-esteem and promotes social contacts and friendships. It is also an important determinant of health that is associated with a range of physiological benefits in children, including reduced cardiometabolic risk and more preferable body size (Boddy et al., 2014). Physical activity in childhood is also positively associated with mental health (Ahn & Fedewa, 2011) and academic achievement (Fedewa & Ahn, 2011), and it is therefore important that children and young people accrue sufficient physical activity.

2.5. PHYSICAL INACTIVITY:

Evidence indicates that children with disabilities do not meet the recommended 60 minutes of moderate-to-vigorous PA. Some studies have shown that children and youth with disabilities have lower aerobic fitness and muscular strength (Mac Donncha et al., 1999; Gillespie 2003; Golubovic et al., 2012) than their typically developing peers, which might negatively influence children’s physical and cognitive development. Among people with physical disabilities, participation in sport, exercise, and other forms of leisure time physical activity (LTPA) has been shown to yield numerous health benefits (Carroll et al., 2014). Nevertheless, the vast majority of people living with a physical disability do not participate in sufficient PA to achieve health benefits (Carroll et al., 2014). In general, daily physical activity levels of children with disabilities have been assumed to be lower than in children without disabilities (Fernhall, 2002). Many children and youth who have intellectual and developmental disabilities (IDD) do not exercise sufficiently, play sports, or have access to recreational activities (Foley & McCubbin, 2009; Howie et al., 2012; Pitetti et al., 2009; Rimmer & Rowland, 2008; Whitt-Glover et al., 2006).

2.6. BARRIERS AND FACILITATORS:
In order for children with disabilities to participate in PA, we come across barriers and facilitators that directly affect the amount and type of PA these children do. Barriers are seen as things that prevent an individual from exercising (Lox, Martin & Petruzzello, 2003). On the other hand, facilitators are factors that by their presence or absence improve functioning and increase the opportunity for a child to participate in physical activity. (WHO, 2007). To enhance participation, we should overcome the barriers and use the facilitators.

2.7. DEFINITIONS:

2.7.1. Adapted physical education:

Adapted Physical Education (APE) develops, implements, and monitors a carefully designed physical education program for a learner with a disability, based on a comprehensive assessment, to give the learner the skills necessary for a lifetime of rich leisure, recreation, and sport experiences to enhance physical fitness and wellness. Adapted physical education generally refers to school-based programs for students ages 3-21. (Auxter, Pyfer, Zittel & Roth, 2010)

This kind of physical education should develop:

- Physical and motor skills
- fundamental motor skills and patterns (throwing, catching, walking, running, etc)
- skills in aquatics, dance, and individual and group games and sports (including intramural and lifetime sports)

The services provided by an APE teacher include (adapted from Sherrill, 1998):

- Planning services
- Assessment of Individuals /Ecosystems
- Prescription/Placement
- Teaching/Counseling/Coaching
- Evaluation of Services
- Coordination of Resources and Consulting
- Advocacy
Physical education needs to be provided to the student with a disability as part of the special education services that child and family receive (APENS, 2008).

2.8. THEORETICAL FRAMEWORK:

The barriers and facilitators are organized according to B. Horne’s criteria in “Making Sport and Physical Activity Inclusive for Disabled People, 2016”. B. Horne divides facilitators and barriers into three main categories:

- **Physical**:
  
  * Facilities: Barriers and facilitators addressing the state of the facilities, or anything related to them such as not suitable facilities.
  
  * Equipment: Barriers or facilitators addressing equipment used by the child in a physical activity, adaptation of equipment, etc.
  
  * Health and safety: Barriers or facilitators related to the disability, problems they can face due to their health.

- **Logistical**:
  
  * Geography: Barriers or facilitators related to transport or distance of the facilities.
  
  * Expenses: Financial barriers or facilitators.
  
  * Support from others: Barriers or facilitators that are addressed to the help the child can get from professional, parents, peers etc.
  
  * Communication: Barriers or facilitators addressing talking and communication between professionals, parents and children or the amount of information parents or children have.
  
  * Suitability: Barriers or facilitators addressing physical activity or its components such as facilities adapted for a child with disability.

- **Psychological**:
* Personal perceptions: Barriers or Facilitators that talk about how the child thinks of himself, motivation, shyness, etc.

* Attitudes from others: Barriers or Facilitators about what other people think and act towards a child with disability.

2.9. RATIONALE:

Physical activity is found beneficial for children with disabilities, unfortunately, it has been studied that they do not meet the recommended amount of time spent doing physical activity. In order to enhance children with disabilities’ participation, a physical educator should overcome the barriers and use the facilitators to accomplish their involvement in physical activity and therefore, these barriers and facilitators should be deeper studied and organized.

3 AIM

The aim of the study is to explore what facilitators and barriers children with different kinds of disabilities can come across in order to get involved in physical activity.

4 RESEARCH QUESTIONS

- What barriers and facilitators do children with intellectual disability encounter in order to be involved in physical activity?

- What barriers and facilitators do children with developmental disability encounter in order to be involved in physical activity?

- What barriers and facilitators do children with physical disability encounter in order to be involved in physical activity?

5 METHOD

5.1. TYPE OF STUDY:

This study is a systematic literature review were the articles where analysed using a deductive method out of B. Horns model of dividing barriers and facilitators. The data was then sorted out, organized and discussed.

5.2. SEARCH STRATEGY:
In order to do the search, the following search words were used; “Physical activity AND barriers OR facilitators AND children with disability” articles that spoke about physical activity and children with disabilities and either contained barriers or facilitators, “children AND special needs AND barriers OR facilitators AND physical activity” articles that spoke about children with special needs and physical activities and had either barriers or facilitators and “sport AND disability AND barriers OR facilitators” articles that were addressed to sports and disabilities and contained either barriers or facilitators. These search words were entered in the data bases Primo JU library, Pubmed, Medline, Psychinfo or Aelmed. After having done the search, 101 articles were found. Some articles where found double due to the fact that the different data bases sometimes had the same articles. Very similar articles were also found, that explained mostly the same subjects and articles that did not fit the research. For the exclusion of those, a selection criteria was used.

5.3. SELECTION CRITERIA:

In order to select the articles that best help answer the aim of the study, an inclusion criteria was used first and an exclusion criteria (See table 1.1). The inclusion criteria was, systematic reviews, the article contain data about children or adolescents (age 0 to 20), different disabilities where included and the article should explain barriers and facilitators. The article could be from the perspective of parents, children with disabilities or teachers. The articles should not be older than 2005 and should talk about barriers and facilitators out of a physical activity perspective. The exclusion criteria were if the article were based on a Specific country or place, if the evidence and citations were unsupported. Also articles that talk about general participation in school/society from children with disabilities were excluded because they did not support the aim of the research.

Table 1.1. Inclusion and Exclusion criteria

<table>
<thead>
<tr>
<th><strong>INCLUSION</strong></th>
<th><strong>EXCLUSION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication type:</td>
<td>Specific country/Place</td>
</tr>
<tr>
<td>Systematic reviews and empirical studies.</td>
<td>Do not specify barriers/facilitators</td>
</tr>
<tr>
<td>Ages:</td>
<td></td>
</tr>
<tr>
<td>Children or adolescents (0 to 20)</td>
<td></td>
</tr>
<tr>
<td>All disabilities</td>
<td>Children with typical development</td>
</tr>
</tbody>
</table>
Barriers and facilitator from parents, children or professional perspectives | Adults with disabilities
---|---
Publication years: 2005-2017 | Focus: General participation
Focus: Physical activity |  
Languages: English or Spanish |  
Peer reviewed |  
Access for free |  

5.4. SELECTION PROCESS:

5.4.1. Title and abstract:

The extraction protocol for the title and abstract was the first one used in order to screen through the articles and exclude the obvious articles that did not accomplish the criteria and did not answer the research questions. The extraction protocol for the title and abstract screening included; title, author, year, disabled children related, focused on PA and includes barriers and facilitators. After having done the title and abstract screening, 65 articles were excluded. The reasons were:

- Were repeated: 13 articles.
- Not focused on children with disability: 1 article.
- Were too old: 6 articles.
- Were not focused on Physical activity: 1 article.
- Did not include barriers and facilitators: 44 articles.

5.4.2. Full text:

Once the title and abstract screening was done, 36 articles were left and the full text screening was performed applying the full text protocol (APPENDIX 1) and the inclusion and exclusion criteria. This full text extraction protocol included; Age of children, Type of disability, School
these disabled children attend to, identified barriers and facilitators and who’s opinion these barriers and facilitators come from.

After having done the full text screening, 21 articles where excluded. The reasons were:

- Age was too wide: 9 articles.
- Specific country/Place: 1 article.
- Unclear barriers and facilitators: 6 articles.
- Did not fulfil quality assessment: 9 articles.

Therefore, after having completed title and abstract review and full text screening, 15 articles where chosen to perform the results of the study.

These where the following:


9. Identifying the barriers and facilitators to participation in physical activity for children with Down syndrome by M. Barr & N. Shields (2011)


The data from the selection process and the reasons for exclusion is shown under figure 1.1 below.
Figure 1.1. Selection process of articles and the reasons why the articles were excluded.
5.5. QUALITY ASSESSMENT:
In order to commit the quality assessment of this systematic review, a grid with statements was formed. It was made by the researcher of the articles according to the ethical considerations and what should an article have to be reliable and trustworthy. All articles where assessed through this grid. If the answer to the statements was positive, the articles where ideal to be part of the systematic review. The statements where the following:

- The purpose is clearly stated

- The results answer the research questions of this study

- The methods are adequately described

- The method commits the ethical considerations

- The data collection is clearly stated

- The selection process is described

- The participants are adequately described

- The process of analysing data was well described

- The discussion/conclusion was well funded in relation to the results

An excel with these results was made and an example of it can be found in APPENDIX 2. In order to be used in the thesis, due to the fact that many articles had passed the stages before, the articles had to fulfill every statement. If the articles didn’t fulfill every statement on the quality assessment, it was not used in the systematic literature review.

5.6. ANALYSIS OF ARTICLES:
In order to organize the results, deductive analysis was used to introduce the results into B. Horne’s model. Sometimes, existing theory or prior research exists about a phenomenon that is incomplete or would benefit from further description. Potter and Levine-Donnerstein (1999) categorizes this as a deductive use of theory. The data from the 15 articles chosen for the study were analysed and carefully placed into the corresponding category.dividing them into three different types of disabilities; intellectual, physical and developmental.
5.7. ETHICAL CONSIDERATIONS:

When taking into account ethical considerations, there are 5 principles to consider (APA, 2010), these are:

- Beneficence and Non maleficence: The researchers of these articles strive to benefit those with whom they work and take care to do no harm. They seek to safeguard the welfare and rights of those with whom they interact professionally and other affected persons, they attempt to resolve conflicts in a responsible fashion that avoids or minimizes harm and are alert to and guard against personal, financial, social, organizational, or political factors that might lead to misuse of their influence. Researchers also strive to be aware of the possible effect of their own physical and mental health on their ability to help those with whom they work.

- Fidelity and Responsibility: The researchers establish relationships of trust with those with whom they work and are aware of their professional and scientific responsibilities to society and to the specific communities in which they work. They uphold professional standards of conduct, clarify their professional roles and obligations, accept appropriate responsibility for their behaviour, and seek to manage conflicts of interest that could lead to exploitation or harm, as well as consult with, refer to, or cooperate with other professionals and institutions to the extent needed to serve the best interests of those with whom they work. They are concerned about the ethical compliance of their colleagues’ scientific and professional conduct. Researchers strive to contribute a portion of their professional time for little or no compensation or personal advantage.

- Integrity: The researchers from the articles seek to promote accuracy, honesty, and truthfulness. Researchers strive to keep their promises and to avoid unwise or unclear commitments. Researchers have a serious obligation to consider the need for, the possible consequences of, and their responsibility to correct any resulting mistrust or other harmful effects that arise from the use of such techniques.

- Justice: Researchers exercise reasonable judgement and take precautions to ensure that their potential biases, the boundaries of their competence, and the limitations of their expertise do not lead to or condone unjust practices.
- Respect for People's Rights and Dignity: The researchers from the articles respect the dignity and worth of all people, and the rights of individuals to privacy, confidentiality, and self-determination. They are aware that special safeguards may be necessary to protect the rights and welfare of persons or communities whose vulnerabilities impair autonomous decision making and are aware of and respect cultural, individual, and role differences, including those based on age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, and socio-economic status, and consider these factors when working with members of such groups. They try to eliminate the effect on their work of biases based on those factors, and they do not knowingly participate in or condone activities of others based upon such prejudices.

In the articles chosen for this study and also through this systematic review, all of these aspects are taken into account and carefully measured. All of the 15 articles chosen in the end to commit the aim had ethical approval. This was checked as part of the quality assessment the articles had to go through.

6 RESULTS

In order to organize the results, the articles where divided according to the disability they spoke about to further discuss the differences found. The articles where divided into the following disabilities:

- Intellectual disabilities: “A disorder of intellectual disability is a condition characterized by significant limitations in intellectual functioning and adaptive behaviour, originating during the developmental period.” (AAIDD, 2013)

- Physical disabilities: “An impairment requiring the use of a wheelchair; an impairment causing difficulty or insecurity in walking or climbing stairs or requiring the use of braces, crutches, or other artificial supports; an impairment (partial or total) of hearing or sight, causing likelihood of exposure to danger in public places or an impairment due to conditions of aging or incoordination.” (Mc. Graw Hill, 2003)

- Developmental disabilities: "A diverse group of chronic conditions that are due to mental or physical impairments. Developmental disabilities cause individuals living with them many difficulties in certain areas of life, especially in "language, mobility, learning, self-help, and
independent living". (Centre for disease control and prevention, 2013). Developmental disabilities can be detected early on, and do persist throughout an individual's lifespan.

The barriers and facilitators of each kind of disabilities are organized using B. Horne’s criteria.

6.1. INTELLECTUAL DISABILITIES:

6.1.1. Barriers:

- **Physical:**
  - *Facility:* Lack of sports facilities, lack of activities and programmes, waiting lists,
  - *Health and safety:* Fatigue, longer to develop skills, lack of physical skill, becomes harder as children get older, obesity, congenital heart defects, communication impairments, low energy level, lack of ability to understand rules and interpret instructions, recurrent chest infection, ear infection, asthma, vision impairments, hearing deficits, continence, arthritis, spinal problems, leukaemia, poor motor skills, lack of coordination, hypotonicity.

- **Logistical:**
  - *Geography:* Distance required to reach the PA place, transportation.
  - *Expenses:* Lack of financial resources and the extra costs associated with raising a child with disability
  - *Support from others:* Need of extra support to participate, lack of practical instructor training,
  - *Communication:* limited partnerships between sectors and time restraints, lack of advertised events, parents lack knowledge or means and the fact that children and parents are not asked about how they can participate

- **Psychological:**
  - *Personal perceptions:* Frustration or loss of confidence when child compares self to peers, non-compliance, preference for a passive activity,
  - *Attitudes from others:* Overprotecting parents, parental exhaustion and therefore, the parents themselves discourage, Not feeling accepted by others, negative societal attitudes towards disability, inaccurate stereotypes.
6.1.2. Facilitators:

- **Physical:**
  - *Facility:* Gyms without architectonic barriers, inclusive pathways, policies & programs,
  - *Equipment:* Gyms with specialized sport machines
  - *Health and safety:* Improving health, change in position of the body, increasing physical strength, enhancement of physical skills and cognitive ability to understand rules,

- **Logistical:**
  - *Geography:* Local activities, transport.
  - *Support from others:* Being with peers, and trying to them, positive influence of the child’s environment, positive encouragement from others, family involvement, skilled instructors, organising sports activities during school hours, disability groups and councils.
  - *Communication:* Enjoying social interaction, good verbal communicators, having enough information, special schools provide information on activity and partnerships between schools,
  - *Suitability:* Structured activity programmes, individual and team activities, meaningful and appropriate activities

- **Psychological:**
  - *Personal perceptions:* Fun, internal motivation, sense of success, sense of enthusiastic and determined individuals
  - *Attitudes from others:* Peer acceptance, having proactive parents, parents as role models and time spending.

6.2. PHYSICAL DISABILITIES:

6.2.1. Barriers:

- **Physical:**
  - *Facility:* Lack of opportunities, no place to exercise, environment not adequately adapted, low availability of programmes, lack of appropriate facilities.
- **Equipment**: Expensive or inappropriate equipment, it takes a long time to acquire the equipment after purchasing it, carrying equipment in public transport is exhausting.

- **Health and safety**: Disability itself, physical injury/complication, lack of energy/fatigue, lack of motor skills, oxygen cost of walking, lack of athletic ability, coordination and skills, issues related to toileting, child’s behavioural problems or lack of social skills.

- **Logistical**:

  - **Geography**: Bad weather, distance to facilities, transportation problems.

  - **Expense**: Costs of transport, expensive equipment, expensive entrance of facilities, lack of funding.

  - **Support from others**: Lack of professional support, dependency upon others, lack of parental support, low maternal level of education, lack of role models, lack of PA partners to play with, relative supportness of the social and attitudinal environments, deficiency of guidance.

  - **Communication**: Lack of information/knowledge on where to exercise or how to exercise, resisting asking for help, don’t know to use equipment, lack of adequate communication between staff, interpreter and child, lack of information about the benefits of physical activity, lack of agreement between organisations about who is responsible for integration and whether integration or segregation was preferable.

  - **Suitability**: Too much effort, having to wake up early, opening hours, crowdedness, activity not adequately adapted, characteristics, layout and design of built and natural environments, lack of recreation opportunities that involve the whole family, focus on competitive team sports or activities not competitive enough

- **Psychological**:

  - **Personal perceptions**: Not perceiving any health benefits, feeling uncomfortable or ashamed, motivational barriers, other priorities, PA/Sports not being fun, lack of interest, awareness of differences from peers, not accepting (extent) of disability, female gender, inconvenient of sweat/combing, previous unpleasant experience, lack of confidence, lack of independence, fear of being stigmatised or teased, fear of injury, fear of incontinence, fear of being out of control
- **Attitudes from others**: Unequal time distribution of the parents between disabled child and siblings, presence of bullying or social marginalization, parental actions, behaviours or concerns, physical activity is not part of the family’s daily life or they have other family priorities, family has a lack of energy to engage in activity, lack of friends or unsupportive peers, peers view them as helpless or doubt their abilities, people’s misconceptions of child’s physical condition or ability, negative attitudes by staff, lack of adequate staff who are willing to work with children with disabilities, staff too focussed on competitive sports, institutional conservatism.

6.2.2. **Facilitators:**

- **Physical:**

  - **Facility**: Chances to join competition, opportunities for sport/PA, sport facility (Having good trainer, communication between trainers and coaches, training in small groups), accessible community recreation facilities, better utilisation of existing facilities, new facilities in rural areas.

  - **Equipment**: Having necessary equipment, adaptative equipment

  - **Health and safety**: Maintenance of fitness/ muscle strength, maintenance of functional independence, walking ability, wheelchair skills, perceiving health benefits, physical appearance, weight loss, endurance, biomechanical walking economy.

- **Logistical:**

  - **Geography**: Active transportation, nice weather.

  - **Expense**: Better funding of programmes and play areas, financial assistance for parents.

  - **Support from others**: Social supports, parental support, teachers and instructors supporting, motivation from PE teacher and friends, parents/sibling involvement, involvement of peers, knowledged staff, community education campaigns, special agency support to provide information, therapeutic advice, design advice.

  - **Communication**: Social contact, asking for help, information and awareness, information on activity provided to parents by school, collaborative approach between organisations and
communities, dissemination networks between parents, voluntary advocacy association to provide demonstration programmes, political lobbying and advice

- **Suitability:** Activity type, access to suitable facilities, disability-adopted programs, increased accessibility, more community-based programmes and opportunities to be active, better programmes, that are structured, sensitive to children with special needs, age appropriate and include a variety of things to do, non-competitive programmes that promote fun and socialisation, programmes that are not therapy oriented, activity relates to a game, programme emphasis on development of social skills and development of self-confidence, emphasis on skill development and child’s ability

- **Psychological:**

  - **Personal perceptions:** Fun, relaxation, attitude, motivational facilitators, feelings of fulfilment, physical challenge, achieve goals/wanting to win, clear the mind, happiness, learning new skills and experience, feeling accepted as part of a group, accepting disability, having perseverance, activity gives sense of freedom, child’s desire to be fit and active, practice to gain skills, practice competence, gaining confidence.

  - **Attitudes from others:** Family resilience, doing PA with parents, parental encouragement and motivation, making friends, positive attitudes from schoolmates, teachers and other people, praise from parents and friends, increasing awareness and education of children without disabilities and their parents, positive encouragement from others

6.3. DEVELOPMENTAL DISABILITIES:

6.3.1. Barriers:

- **Physical:**

  - **Facility:** Lack of opportunities, lack of physical activity programs to join, waiting list, child is not allowed to play matches

  - **Equipment:** Lack or unsafe equipment

  - **Health and safety:** Lack of energy/fatigue, an attractive sport is too difficult, pain, fear of increased risk of an injury, learning the required motor skill is too time consuming, lack of skill or motor control
- **Logistical:**

  - **Geography:** Lack of access to transportation, having to be driven somewhere, inclement weather.

  - **Expense:** Financial restrictions

  - **Support from others:** Lack of a peer exercise partner, parents do not have time, trainer often not aware of the complexity of the child.

  - **Communication:** Hesitating to ask a trainer to support their child, lack of awareness of possibilities, not knowing what “suits” the child.

  - **Suitability:** Time of training is inconvenient, teams are too big, not “open” for children with disabilities, no team that “suits” the child (level and age).

- **Psychological:**

  - **Personal perceptions:** Having the opinion that being active is not good for the body, attitude of the child, feeling insecure or ashamed, child does not accept the disability, perception of physical activity and sports as not being ‘fun’, fear of child not fitting in, lack of time, other preferences, feeling tired, feeling bored.

  - **Attitudes from others:** Parent not accepting the extent of the disability, parental dissatisfaction with the environment, not being accepted by peers, not being accepted by other parents, being bullied, parental challenges with observing the child struggling with sport, being underestimated

6.3.2. Facilitators:

- **Physical:**

  - **Facility:** Access to physical activity or sports in the community, good surface for walking or running, parks and playgrounds available in the community, school prepares for after-school physical activity.

  - **Equipment:** Direct exercise equipment, supportive exercise equipment
● Logistical:

- Geography: Good weather

- Support from others: School encourages physical activity, having a good trainer, friends are supportive or physically active, family is supportive or physically active, doing chores at home, pets are physically active.

- Communication: Awareness of opportunities for sport and physical activity, good communication between trainers/coaches

- Suitability: Training in small groups, playing individual/dual sports, playing Wii sports/Fit, playing team sport, involving favourite figures/interests.

● Psychological:

- Personal perceptions: Perception of relaxation, belief that exercise has health benefits, desire to be active, positive attitude towards being challenged, acceptance of the disability, view of sports and physical activity as an opportunity for social interaction, having perseverance, feeling accepted as part of a group, feeling confident, experience of enjoyment, view of exercise as an opportunity to ‘clear the mind’, feeling rewarded, feeling refreshed

- Attitudes from others: Parental awareness of the benefits of physical activity, parental perseverance, parental assertiveness, being accepted by peers, being accepted by other parents.

6.4. EVERY KIND OF DISABILITY:

6.4.1. Barriers:

● Physical:

- Facility: No accessible buildings/facilities

- Equipment: Lack of accessible exercise equipment, lack of suitable equipment

- Health and safety: Pain, lack of energy, health conditions, lack of strength

● Logistical:

- Geography: Lack of transportation, buildings or facilities located far away.
**Expense:** Programme and equipment costs

**Support from others:** Unqualified staff who cannot modify or adapt individual and group exercise classes for people with disabilities, no encouragement from rehabilitation services, not having necessary staff or support, not having knowledgeable staff, lack of interest from the administration to adapt activities

**Communication:** Lack of specific knowledge about the benefits of physical activity, lack of knowledge about how to exercise, lack of information about physical activity, no counselling

**Suitability:** High level competition, emphasis on winning

- **Psychological:**

  - **Personal perceptions:** Self-consciousness about exercising in public, perception that exercise is too difficult, negative mood, depression, anxieties, fears.

  - **Attitudes from others:** Discriminatory practices at fitness centres and other recreational venues, other people’s negative attitudes, not having a role model

When comparing the results with the ones obtained in the articles that spoke about all type of disabilities included it was found that none included facilitators, they only spoke about barriers, therefore, compared to the results obtained from the articles that included all types of disabilities in its study, the articles show that that the barriers are similar.

As a sum up of the results, looking at the barriers, all three types of disabilities spoke about facilities, health and safety, geography, expenses, support form others, communication, personal perceptions and attitudes from others. Only physical and developmental disabilities pointed out barriers that had to do with equipment and suitability. Looking at the facilitators, all three kinds of disabilities spoke about facilities, equipment, geography, support from others, communication, suitability, personal perceptions and attitudes from others. Intellectual and physical disabilities were the only ones that pointed out health and safety and only physical addressed expenses as a facilitator.

### 7 DISCUSSION

In the discussion part several aspects will be addressed. First of all, results will be discussed. Which are the most and the least expressed barriers and facilitators in each type of disabilities.
Results found according to perspectives (from children, professionals and parents) will also be further discussed. Some considerations to take into account when wanting to enhance participation, besides thinking about the barriers and facilitators found in the results will be stated and finally a discussion about method and limitations will be explained.

7.1. DIFFERENCES IN DISABILITIES:

The results achieved in each article were similar when the article spoke about the same type of disability. The articles were divided in three different types of disabilities; Intellectual disabilities, physical disabilities and developmental disabilities and when looking at the results, common categories for each disability were found. As it can be seen through the results, each disability type has a different perception of each factor and focuses more on one of the aspects according to the needs of a child with either intellectual, developmental or physical disability.

While articles that talk about intellectual disabilities focus more on barriers about health and safety and attitudes from others and facilitators about health and safety and support from others, physical disabilities focus deeper on barriers such as support from others, suitability or communication as well as personal perceptions and attitudes from others. The facilitators these articles about physical disabilities focus more on are support from others, suitability and personal perceptions. With the developmental disability articles, we find they focus more on barriers such as personal perceptions and attitudes from others and facilitators about facilities and personal perceptions.

On the other hand, results according to intellectual disabilities show less interest in barriers about geography, expenses and support from others and facilitators about geography and equipment. Physical disability articles focus less on barriers about expenses as well as geography and equipment and finally articles about developmental disabilities don’t focus much on equipment and expenses as barriers and don’t even mention expenses and health and safety as facilitators. These results compared to the barriers showed in the general disabilities articles show a strong similarity.

According to N. Shields, A. Synnot & M. Barr, (2012), “the barriers to participation have been studied more comprehensively than the facilitators and include a lack of knowledge and skills, the child’s preferences, fear, parental behaviour, negative attitudes to disability, inadequate facilities, lack of transport, lack of programmes and staff capacity, and cost. In the
case of physical activity, reported facilitators include the child’s desire to be fit and active, skills practice, involvement of peers, family support, close and accessible facilities, opportunities sensitive to the needs to children with disability, skilled staff and information dissemination”. The results obtained in this study are the same as the ones reported by their study and therefore it can be called a general opinion.

7.2. DIFFERENCES IN PERSPECTIVES:

On another basis, the different perspectives obtained from parents, professionals and children is very important in order to see aspects such as amount of communication between professionals-parents, parents-children and children-professional. Also the knowledge professionals and parents have about PA, and how a child with disability feels about it, because in the end, its the child the one who takes part on the activity so his perception and feelings should be the most important results to be taken into account. N. Shields, A. Synnot & M. Barr, (2012), found in their study that the reported barriers and facilitators to participation can differ according to whose views are elicited. Children with disability tend to focus on personal factors, while parents focus on familial, social and policy and programme factors. The barriers and facilitators of physical activity for children with disability, highlighted personnel, social, environmental, policy and programme-related factors that influence whether or not a child with disability participates in physical activity and community sports. These include a lack of knowledge and skills, the child’s preferences, fear, parental behaviour, negative attitudes to disability, inadequate facilities, lack of transport, programmes and staff capacity, and cost. G. Bedell, W. Coster & M. Law, et al., 2013 stated that children with disabilities may be limited in terms of motor abilities and social skills, thus impacting their ability to participate in physical activities. They are thought to include social, cultural and environmental factors that can act as barriers to a child’s participation.

The results obtained in this systematic review support these researchers’ investigations because from the parents perspective, it is seen that the main focus of their results are health and safety, communication and attitudes from others as barriers and support from others and attitudes from others as facilitators. On the other hand, they focus the least on facilities and equipment as barriers and facilities, equipment, geography and expenses as facilitators.

From the professionals’ perspective, the results show that they give more importance to facilities, health and safety, communication and attitudes from others as barriers and support
from others and personal perceptions as facilitators. The professionals mention at least once every barrier, however, they don’t mention equipment as a facilitator.

The child’s most focused barriers are health and safety, attitudes from others, geography and support from others and the facilitators are support from others and personal perceptions. The least are expenses, communication and personal perceptions as barriers and just expenses as facilitators.

These results show that there is a lack of communication and a lack of knowledge from parents and professionals about a child with disability’s thoughts and opinions due to the fact that parents and professionals focus their perceptions on aspects such as geography and expenses instead of thinking about the child’s personal perception or his communication with peers.

7.3. CONSIDERATIONS TO ENHANCE PARTICIPATION:

In order to enhance participation of children with disabilities in PA, besides the barriers and facilitators stated in the results, that should be very carefully examined, there are some considerations that should be taken into account. It is important that children are empowered with an “I can do” attitude rather than discouraged by the message “you can’t do that.”(Wilson, 2002). Properly designed and implemented programs of sports and physical activities for children with disabilities should target cardiovascular endurance, flexibility, balance, agility, and muscular strength and accessibility, safety, and enjoyment. (Durstine, Painter, Franklin, Morgan, Pitetti & Roberts, 2000). Strategies to minimize the risks of illness or injury to children with disabilities during sporting activities should be implemented before participation. Exercise that is of longer duration, greater frequency, and lower intensity compared with programs for typically developing children is recommended. (Durstine, Painter, Franklin, Morgan, Pitetti & Roberts, 2000). Latex-safe environments should be provided, and resuscitation medications should be readily accessible. (Patel & Greydanus, 2002). Careful attention must be directed at proper training, hydration, clothing, and equipment. Some children with disabilities have impaired motor coordination, decreased endurance, limited mechanical efficiency, and osteopenia, factors that can predispose to musculoskeletal injuries and overuse syndromes. (Wilson, 2002). Conditions that may limit a child’s participation or predispose the child to injury, individual preferences, and the availability of appropriate local programs must be individually considered. The child’s current
health status, the level of competition, the specific sport and position to be played, availability of protective or adaptive equipment, whether the sport can be modified to allow safer participation, and the ability of child and parent to understand and accept the risks involved must all be addressed before participation. (American Academy of Paediatrics, Committee on Sports Medicine and Fitness, 2001). With the proper guidance, the risk of injury to physically challenged children is no greater than that to athletes without disability (Patel & Greydanus, 2002).

7.4. METHOD AND LIMITATIONS:

When discussing the method of this study, a systematic review is ideal when wanting to find information that has been researched on a certain topic. The research that had been done in this topic was quite complete, however, the inclusion and exclusion criteria had to be changed several times. The initial idea was to limit the age range from 6 to 12 and to divide the results into the different perspectives from parents, children and professional in mainstream schools. However, there was not enough research that was based only on children from 6 to 12 and that spoke only about mainstream schools. Therefore, the criteria had to be changed to age 0 to 20 and physical activity in general instead of only physical education at school. The article extraction protocol was also changed several times due to this fact, there was not’t enough information to extract from certain topics.

On the other side, a limitation I found was the fact that the results show that more articles were found that spoke about barriers than about facilitators and a big overlapping comes up of categories into which these barriers and facilitators are organized. Some articles are divided into more general categories (Personal and environmental factors) while other articles are divided into deeper specific categories such as policies, social factors or community factors. This makes the researcher think about how should barriers and facilitators be categories and how important it is to have a general and uniform division of barriers and facilitators as these affect directly a child’s participation and are necessary to analyse and plan an intervention in order to enhance participation.

Even though the barriers and facilitators were divided using B. Horne’s criteria, a universal and united division criteria is still necessary in order to be able to make a systematic review of future articles and research about barriers and facilitators to participation. It is also believed that the fact there is no criteria makes inclusion and the enhancement of participation even
harder for children with disability due to the difficulties on planning an intervention or assessment of what should be changed.

Another limitation of the method could be the inclusion of Spanish articles into the research, some articles, when translated to English could miss or miss understand some words and that would make it more difficult when analysing results.

Trustworthiness is also an issue to address. According to Lincoln & Guba, (1985) trustworthiness of a research study is important to evaluating its worth. Trustworthiness involves establishing: I. Credibility; Confidence in the 'truth' of the findings, II. Transferability; Showing that the findings have applicability in other context. III. Dependability; Showing that the findings are consistent and could be repeated, IV. Confirmability; The extent to which the findings of a study are shaped by the respondents. In this paper, being just one researcher studying the topic, it was hard to commit this due to the lack of perspectives and the amount of articles needed to explain the aim. It was difficult to be attentive to every single data on the articles researched. However, on the other hand, it was the same person reading articles so the knowledge about the topic was very high and well documented.

8 CONCLUSION

Lack of physical activity in children with disabilities is a very important aspect to be improved due to the amount of benefits they can obtain. However, the problem is not only the fact of them not wanting to do exercise but the amount of barriers they can come across while trying to participate. Luckily, facilitators are also there to enhance their participation by making it a bit easier for them to exercise. After having done the systematic literature review, we now have a clear idea of which barriers we should work on and overcome in order to get disabled children to do physical activity as well as having a good vision of which facilitators can help us motivate a child to exercise.
9 REFERENCES


https://doi.org/10.2466/06.13.15.PMS.112.2.573-580


Special Olympics (2005), *Changing lives through sport: a report card on the impact of Special Olympics.*


WHO (2011) World report on disability. 3--5


## APPENDIX 1: EXAMPLE OF EXTRACTION PROTOCOL

<table>
<thead>
<tr>
<th>AUTHOR</th>
<th>YEAR</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nora Shields and Anneliese Synnot</td>
<td>2016</td>
<td>Perceived barriers and facilitators to participation in physical activity for children with disability: a qualitative study</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUTHOR</th>
<th>YEAR</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>Nora Shields and Anneliese Synnot</td>
<td>2016</td>
<td>Perceived barriers and facilitators to participation in physical activity for children with disability: a qualitative study</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>BARRIERS</th>
<th>FACILITATORS</th>
<th>WHO’S OPINIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Longer to develop skills *Lack of physical skill *Frustration or loss of confidence when child compares self to peers *It’s harder as children get older *Need extra support to participate *Extra costs associated with raising a child with disability *Parents lack knowledge or means *Lack of practical instructor training *Negative societal attitudes towards disability *Disability a low priority *Parents doubt child’s safety or ability *Parental exhaustion *Children and parents are not asked about how they can participate *Lack of transport *Distance *Lack of activities *One-off programs *Waiting lists *No quorum *Poor advertising of programs *Difficulty for program providers finding families *Limited partnerships between sectors.</td>
<td>*Positive encouragement from others *One-on-one instruction *Children that are motivated to keep fit *Happy-go-lucky, confident child *Naturally active child *Proactive parents *Skilled instructors *Peer acceptance *Understand disability *Inclusive policies &amp; programs *Family involvement *Inclusive pathways *Fun &amp; sense of success *Transport *Local activities *Meaningful, appropriate activities *Opportunities at school *Word of mouth between parents *Special schools provide information on activity *Partnerships between schools, activity providers, disability groups and councils.</td>
<td>Child with a disability aged 10–18 years, the parent of a child with disability aged between 6–18 years, or a professional working in the sports and recreation sector with people with disability.</td>
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<td>Column</td>
<td>ARTICLE 1</td>
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<td>A (purpose)</td>
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<td>B (results)</td>
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<td>E (data)</td>
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<td>J (conclusion)</td>
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APPENDIX 3A: TABLE OF RESULTS SORTED BY ARTICLES
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<td>Barns and facilities of sports in children with physical disabilities: a mixed-method study</td>
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<td>Physical activity for youth with a critical need in an underserved population</td>
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<td>Physical activity engagement in young people with Down syndrome; Investigating parental beliefs</td>
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<td>Perceived barriers to and facilitators of physical activity in young adults with childhood-onset physical disabilities</td>
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**APPENDIX 3B: TABLE OF RESULTS SORTED BY DISABILITIES**
### APPENDIX 3C: TABLE OF RESULTS SORTED BY PERSPECTIVES:

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#### Columns:
- **Parents**
- **Children**
- **Professionals**