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Evidence-Based Best Practices in Physical Activity for Children with Serious Disabilities A Synthesis of the Research Literature

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Evidence-Based Best Practices in Physical Activity for Children with Serious Disabilities A Synthesis of the Research Literature

A Synthesis Project

Presented to the

Department of Kinesiology, Sport Studies, and Physical Education

The College at Brockport

State University of New York

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

(Adapted Physical Education)

by

Roselym M. Miranda-Mercado

December 16, 2017

THE COLLEGE AT BROCKPORT

STATE UNIVERSITY OF NEW YORK

BROCKPORT, NEW YORK

Department of Kinesiology, Sport Studies, and Physical Education

Title of Synthesis Project: Evidence-based best practices in physical activity for children with serious disabilities: A synthesis of the research literature

Read and Approved by:		Susan Petersen	_
Date:	12/18/17		

Accepted by the Department of Kinesiology, Sport Studies, and Physical Education, The College at Brockport, State University of New York, in partial fulfillment of the requirements for the degree Master of Science in Education (Physical Education).

Date: 12/18/17
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Abstract

Serious disabilities are diagnosed in approximately 1 in 100 of children who have serious disabilities (Jasma, 1988). The development of the psychomotor domain in children with serious disabilities is typically below the development of their peers without special needs (Jasma, 1988). Generally, children with serious disabilities tend to be sedentary or lack opportunities to participate in physical activity compared with their peers without disabilities (Jasma, 1988). Traditional assessments such as TGMD-3 (Test of Gross Motor Development) or Brockport Physical Fitness Test, are not designed or do not have accommodations for children with serious disabilities (Grenier, & Miller, 2018). The purpose of this synthesis is to identify, based on research the best practices and programing recommendations in physical education for children with serious disabilities. In addition, facilitators and barriers to this process will be explored. The intent of this synthesis is to determine how to best increase physical activity performance in students with serious disabilities. The results of this synthesis indicated Aquatic environment is the most appropriate environment for physical activity for individuals with serious disabilities. Literature reveals that the main barriers are people's perceptions of disability and level of support needed. Adequate professional preparation when working with and modifying activities for children with serious disabilities is extremely important for teachers and paraprofessionals.

Chapter 1

Introduction

Serious disabilities are diagnosed in approximately 1 in 100 children in the world (Jasma, 1988). Due to the increase of this population over the past decade, serious disabilities have become a priority for research, which has shown a least restrictive environment is suitable for academic success. The diagnosis of serious disabilities has the following parameters: a combination of mental and physical impairments before the individual is the age of twenty-one; limitations in three or more of the following areas of major life activities, self-care, learning, mobility, and self-direction (Jasma, 1988). The development of the psychomotor domain in children with serious disabilities is typically below the development of their peers without special needs (Jasma, 1988). Consequently, the motor development in this population requires a team of special physical educators, physical therapists, therapeutic therapists, occupational therapists, kinesiotherapists, disability sport specialists, and activity therapists enriching their psychomotor domain to be successful in their least restrictive environment.

Generally, children with serious disabilities tend to be sedentary or lack opportunities to participate in physical activity compared with their peers without disabilities (Jasma, 1988). In addition, the experience in physical education for children with serious disabilities must be an environment where the activities are designed according to the chronological age and functional development to cover the unique needs of the child. Educational experiences should provide enough time in physical activity to benefit the motor development of the child with serious disabilities (Jasma, 1988). Classes should be designed according to the child's preferences in an environment similar to natural environments, providing the opportunity to practice daily skills that can be used in community activities (Oftedal, Bell, Davies, Ware, & Boyd, 2015).

Physical activity is considered an essential part of health during the child's development (Oftedal, Bell, Davies, Ware, & Boyd, 2015). Globally, childhood obesity has increased by 80% over the last ten years (Jones & Mei-Po Wong, 2007). Childhood obesity is directly related to future prediction of the increase of obesity in adults. Healthy active lifestyle choices in children with serious disabilities can prevent the development of sedentary behaviors, avoiding the development of chronic health issues and hypokinetic diseases (Oftedal, Bell, Davies, Ware, & Boyd, 2015). A prolonged time without movement or no movement at all in children with serious disabilities can increase spasticity, decrease bone density, and decrease muscle tone (Sato, Iwasaki, Yokoyama, & Takenobu, 2014). Also, physical activity offers the opportunity to increase motor functioning based on the child's chronological age (Oftedal, Bell, Davies, Ware, & Boyd, 2015). For this reason, it is recommended that children with serious disabilities participate in physical activity in no less than 20-minute increments, three times a week to avoid sedentary behavioral disorders (Jones & Mei-Po Wong, 2007).

Most students with serious disabilities are not motivated to participate in physical activity because of their poor motor skills, further reducing their opportunities for improvement (Lee, Psotta, & Vagaja, 2016). At the moment, these childrens' need for the help from other people is apparent and the level of support for children with serious disabilities to be physically active needs to increase. Typically, these children demonstrate limited involvement or are significantly dependent on physical assistance or modifications in the real environment (Tunson & Candler, 2010). Oftedal, Bell, Davies, Ware, & Boyd (2015) describe the case of a child with a serious disability and they studied the child's participation, performance, and capacity and found that the improvement of ambulatory and marginally ambulatory movements (Gross Motor Faction Classification System; GMFCS I-III) in children with Cerebral Palsy can help in the

development of skills used in real life. This is the reason that any physical education program should be directly related to the development of the skills necessary to have an active healthy life. Then, these children can be successfully included in community activities or in the process of transition services.

Assessment is the process of learning measurement reported by students, parents and administrators (Grenier, & Miller, 2018). Effective teaching uses (1) appropriate assessment, (2) determines the needs of the student, (3) sets goals, (4) and monitors student progress (Horvat, Block, Kelly, & Croce, 2018). Traditional assessments such as TGMD-3 (Test of Gross Motor Development) or Brockport Physical Fitness Test, are not designed or do not have accommodations for children with serious disabilities (Grenier, & Miller, 2018). Therefore, alternative assessments should be considered when teaching children with serious disabilities (Grenier, & Miller, 2018).

Purpose

The purpose of this synthesis is to identify, based on research the best practices and programing recommendations in physical education for children with serious disabilities. In addition, facilitators and barriers to this process will be explored. The intent of this synthesis is to determine how to best increase physical activity performance in students with serious disabilities.

Operational Definitions-

Serious disabilities- a disability with requires multiple services over an extended period of time and results from amputation, blindness, cancer, cerebral palsy, cystic fibrosis, deafness, heart

disease, hemiplegia, mental retardation, mental illness, multiple sclerosis, muscular dystrophy, neurological disorders (including stroke and epilepsy), paraplegia, quadriplegia, and other spinal cord conditions, renal failure, respiratory or pulmonary dysfunction, and any other disabilities (Jasma, 1988).

Transition services- a coordinated set of activities for a student, with a disability, that: (A) is designed within an outcome-oriented process, that promotes movement from school to post-school activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation; (B) is based on the student's needs, taking into account the student's preferences and interests; and (C) includes instruction, community experiences, the development of employment and other post-school objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation (EHA Amendments of 1990, P.L. 101-476, 20 U.S.C. § 1401) (**Grenier & Lierberman, 2018**).

Barrier- A circumstance or obstacle that keeps people or things apart or prevents communication or progress (Oxford Dictionaries n.d., https://en.oxforddictionaries.com/definition/barrier)

Facilitator- A person or thing that makes an action or process easy or easier (Oxford Dictionaries n.d., https://en.oxforddictionaries.com/definition/facilitator).

Least Restrictive Environment- is the environment in which the child learns best (Lierberman & Houston-Wilson, 2017).

Authentic assessment- is an ongoing feedback system that monitors and records student learning and outcomes under what are termed authentic conditions. Authentic assessments are conducted in real-life situations and gives students a chance to demonstrate skills, knowledge, and developmentally appropriate functional activities (Grenier & Lierberman, 2018).

Assumptions

- It was assumed that respondents provided honest expression of their knowledge and recollection.
- 2. It was assumed that all methods of data collection that were reliable and valid.

Limitations

- 1. Some studies use adapted physical education classes that vary in quality.
- 2. Sample size in some studies were often very small.
- 3. There were limited studies available in the literature that dealt with students with serious disabilities.
- 4. Some of the participants in the studies have different types or degree of severe/profound disabilities so it is very difficult to generalize to a larger population.

Delimitations

- 1. The review literature included articles only from 1988-2017.
- 2. The research articles used in this synthesis are limited to full-text articles in peerreviewed journals.
- 3. The subjects of this synthesis are limited to students with serious disabilities.
- 4. Research articles are focused on physical activity during physical education or transition activities.

Research Questions-

1. What are the evidence-based practices for providing physical education services to children with serious disabilities?

- 2. What are the barriers/facilitators to providing effective physical education when working with children with serious disabilities?
- 3. What are the programmatic recommendations based on these evidences based practices and barriers?
- 4. What are the potential areas in need of further investigation for successful physical education instruction for children with serious disabilities?

Chapter 2

Methods

The purpose of this synthesis is to identify, based on research the best practices and programing recommendations in physical education for children with serious disabilities. In addition, facilitators and barriers to this process will be explored. The intent of this synthesis is to determine how to best increase physical activity performance in students with serious disabilities. Chapter two describes how the research was collected for this synthesis.

Data Collection

The information selected for this synthesis project was retrieved by computer database. This database generated resources of peer-reviewed and scholarly articles. Each of these different databases were found through the Drake Memorial Library in the College at Brockport or by faculty member suggestions. The article selection was provided by EBSCOHOST database. The articles must be published in pre-reviewed journals to be included in this critical mass between the years 1988 to 2016. In addition, the articles considered for this study must have one of the following keywords: (a) *physical activity with children with severe disabilities*; (b) *children with severe disabilities*; (c) *physical activities*; (d) *severe disabilities*; and (e) *for children*; and (f) *individuals with severe disabilities*.

The first search in the EBSCOHOST database was found in the SportDiscuss search engine. The key words *physical activity with children with severe disabilities*, *children with severe disabilities*, and *physical disabilities* were submitted in the search with a result of 76 results appropriate for the critical mass. Of the 76 results, five articles had the potential to be included in the critical mass. The second search in the EBSCOHOST database was under Academic Search Complete search engine. This search resulted in 192 possible articles for the critical mass. Of the 192 possible articles, four articles with the requirements to be included in

the critical mass. In total, this search resulted in the finding of nine articles that complied with the requirements of the keywords to be included in the critical mass.

One other search was done using the SPORTDiscuss search engine through the EBSCOHOST database. The keywords used were *physical activities*, *severe disabilities*, *children with severe disabilities*, and *individuals with severe disabilities*. Five articles were selected for their potential to be included in the critical mass. During the search, the word *children* was replaced by *individuals with severe disabilities*. The change of this keyword generated three articles with potential to be included in the critical mass. The total of this search concluded with eight articles that complied with the requirements to be included in the critical mass.

The final search was completed by advisement of a faculty member of the adapted physical education program at The College at Brockport. This advisement resulted in the finding of an article with high potential to be included in the critical mass. The final result of this last search was an article that complies with the requirements to be included in the critical mass.

The total of 18 articles were categorized in a folder in the Zotero program. The final selection was comprised of ten articles that complied with the requirements of being peer-reviewed and having the appropriate content to be included in the critical mass of this synthesis project. Three or more articles that did not meet the requirements were used for the construction of other aspects related to this synthesis. The articles of this synthesis were obtained from the following journals: *Performance Journal, Rehabilitation Research Development Journal, Journal of the American Society of Hypertension, African Journal for Physical, Health Education, Recreation and Dance, Adapted Physical Activity Quarterly, Disability and*

Rehabilitation An, International, Multidisciplinary Journal, Child: Care, Health and Development, Acta Gymnica, Informa Healthcare USA, and European Journal of Adapted Physical Activity.

Data Analysis

A coding research table was used to summarize the key data from each of the articles chosen for the critical mass. This coding research table included the purpose, participants, data methods and analysis, results, conclusion, limitations, and recommendations found in the articles. The coding research table included one qualitative article, six quantitative articles and three mixed studies that were both quantitative and qualitative.

During the quantitative studies, the researchers used different methods to collect data. One qualitative article by Aidar, Oftedal et al, (2007) used the "Pediatric Evaluation Disability Inventory" (PEDI) to assess social function, attendance, meaning of the words, understanding complex sentences, functional communication, problem solving, peer interactions and play skills. Another qualitative article by Barak oftedal et al, (2016) used Profile of Mood States (POMS) to assess six dimensions of transient mood states: anger, confusion, depression, fatigue, tension and vigor, the State-Trait Anxiety Inventory questionnaire to assess current anxiety symptoms and a generalized inclination to be anxious, the World Health Organization Quality of Life-BREF assessment to assess quality of life, and the Rosenberg Self-Esteem to assess individual self-esteem by establishing both negative and positive feelings about the self. Another article used batting average, on-base average, and total bases to assess student's performance (Bernabe & Block, 1994). Two articles used the test of Gross Motor Function Measure (GMFM) to assess five dimensions of gross motor function, namely a) laying and rolling; b) sitting; c) crawling and kneeling; d) standing; and e) walking and running (Bhutia, Nair, & Surujlal, 2015). Another

article used the Groningen Care Barometer test to assess quality in support of parental or legal guardians (Bhutia, oftedal et al., 2015 & Vascákova, oftedal et al., 2015). Another article used the Taxonomy of biobehavioral states observable by Guess to assess: (1) asleep with eyes closed, no body movements, no vocalizations; (2) awake agitated with eyes open, crying, or fidgeting; (3) awake inactive with eyes open with no apparent movement; (4) self-directed with eyes open with some visual, auditory, tactile, or olfactory orientation toward self; (5) visually attentive with eyes open and exploring the environment visually with little motor movement; (6) active reaching with eyes open, oriented to environment, and reaching/grasping objects within reach (Tunson & Candler, 2010). Finally, the last article used the Water Orientation Test (WOTA) to assess quality of aquatic skills and the Halliwick Concept to assess: (a)individual approach, (b) personal one to one contact, and (c) independency of swimmers (Vascáková, Kudlácek, & Barret, 2015).

The qualitative article (Sterbová, & Kudlácek, 2014), utilized interview data to categorize themes. The researchers also used journal entries and field notes during observations in family camps.

The final two studies used a mixed method in their research. One article used fitness and health/hygiene tests and scores on the Adaptive Behavior Scale to assess the deinstitutionalize decision of five skills to have functional value. Those skills include: 300-yard run/walk (cardiorespiratory endurance), grip strength, modified sit-ups (abdominal endurance), modified bench press (upper body strength and endurance), and modified sit and reach (lower back and hamstring flexibility); and the qualitative data was the level of independence in the participants (Jasma, Decker, Ersing, McCubbin, & Combs, 1988). The last mixed-methods study used the McNemar test to analyze differences between children and parents and the Mann-Whitney U test

to assess differences in the number of experienced barriers and facilitators between active and passive children. The qualitative data used in this study was interviews, thematic analysis, video tape and transcript by the first author (Jaarsma, Oftedal et al, 2014).

In the ten articles selected for the critical mass, there were total of 2,185 participants, of which 1,809 were parents or legal guardians, 114 were adults with severe disabilities and 262 were children with severe disabilities. Most of the children involved in this study were male participants.

Chapter 3

Review of Literature

The purpose of this chapter is to review the literature based on the content of the synthesis. A total of 10 articles were used in this study. The results were categorized in the following: (a) evidence-based practices, (b) barriers, and (c) curricular ideas or programming.

Evidence-based practices

This subsection titled based-evidence practices includes two articles that explain the most appropriate teaching strategies for children with serious disabilities that can be applied in order to achieve the objectives set by the teacher. An example of this subsection is the use of the aquatic environment with 1:1 instruction.

The two articles found that water activities improve the motor development of children with serious disabilities and children with autism. The first study conducted by Vascáková, T., Kudlácek, M., & Barret, U. (2015) titled, *Halliwick Concept of Swimming and its Influences on Motoric Competencies of Children with Severe Disabilities*. For this study, the authors studied ten children with cerebral palsy and combined impairments (six males and four females) with a mean age of 5.5. The researchers used the GMFM test was used to assess five dimensions of gross motor function: (a) lying and rolling, (b)sitting, (c)crawling and kneeling, (d)standing and (e)walking; Water orientation test (WOTA) was used to assess quality of aquatic skills. The Halliwick Concept is a specific form of water based therapy using aquatic environment to assess: (a)individual approach, (b) personal one to one contact, and (c) independency of swimmers. The instruction was 1:1 during ten aquatic sessions. Halliwick Concepts were used during aquatic session as a relaxation resource. Results reveled participants with a diparetic form of cerebral

palsy (two males and one female) improved GMFM scores by 4.25%. The participants improved gradually: (b)sitting -3.85%, (c) crawling and kneeling -2.81%, (d)standing -4.37%, and (e)walking, running and jumping -5.97%. In the WOTA score, participants had an overall improvement of 8.33 points. Participants with quadruparetic form of cerebral palsy (two males and one female) increased their GMFM scores by 5.20%. Improvements: (a)lying and rolling -5.40%, (b) sitting -7.20%, (c) crawling and kneeling -2.70%, (d) standing -3.75%, and (e) walking, running and jumping -1.75%. The WOTA scores increased by 9.67 points. Those scores demonstrated major improvement in the diparesis group with the difference of 1.34 points. Participants with autism (two males and two females) increased their GMFM scores by 1.57%. Improvements: (d)standing -3.50% and (e)walking, running and jumping -2.80%. In the WOTA scores, the participants increased by 1.16 points. This group was the higher scoring by 15.13 points. This study supports the idea that the Halliwick Concept is a successful technique to improve aquatic skills and motor skills performance in children with cerebral palsy and combined impairments.

The second study by Aidar, F.J., Silva, A.J., Reis, V.M., Carnerio, A.L., Vianna, J.M., & Novaes G.S. (2007) was titled, *Aquatic Activities for Severe Cerebral Palsy People and Relation with the Teach-Learning Process*. The researchers used 21 children (9 females and 12males) with severe cerebral palsy aged between one and twelve years. The researcher chose the participants based on their locomotion ability and the diagnosis of severe cerebral palsy. Those interested in participating in this study signed the consent form. The "Pediatric Evaluation Disability Inventory" (PEDI) with manual abilities was used to assess the pre-test and post-test evaluation. The PEDI consisted of social function, attendance, meaning of the words, understanding complex sentences, functional communication, problem solving, peer interactions

and play skills. The evaluation with manual abilities consisted of the manipulation of paper and pencil. The study took place during sixteen weeks with two classes in the week (45 minutes each). The instructor submitted the pre- and post-test after completing ten sessions. The data was analyzed using the T-test in the SPSS program. In the presented results indicate that aquatic environment promotes social function and motor abilities in children with cerebral palsy. Results showed participants improved the level of social function and the ability to handle paper and pencil. Another result is the aquatic environment promote social function between children during aquatic physical activities. Also, aquatics games could facilitate the children cognitive, with improvement in prehension of objects, attention and learning colors. Moreover, water would stimulate circulation, breathing, and improve posture. This study demonstrated that physical activities improve the range of movement. Aquatic environment as the best exercise to maintain the conditioning of conditions, recreation, sport, and gets better cognitive aspects in children with cerebral palsy. Aquatic physical activity gives the opportunities for improve resolution of problems, interaction with companions, games with objects, domestic tasks, community functions and interactive social games. The water activities would be the best teaching-learning environment as they improve social skills, motor skills, and promote independence in individuals with severe cerebral palsy.

Both articles concluded that aquatic environment improves social skills, and motor skills in children with serious disabilities. On the other hand, the two articles showed that children with serious disabilities have better motor performance in aquatic environments. With the results of the articles, aquatic skills can be recommended to increase social and motor skills in children with serious disabilities.

Barriers

For this subcategory, barriers are defined as a circumstance or obstacle that keeps people or things apart or prevents communication or progress (Oxford Dictionaries n.d., https://en.oxforddictionaries.com/definition/barrier). Example of barriers include behavior, parental support, and sport participation. A total of four articles were chosen for this subcategory.

The article by Tunson, J., & Candler, C. (2010) was titled *Behavioral States of Children* with Severe Disabilities in the Multisensory Environment. There were three children (three to ten years) with multiple severe disabilities participating in this study. The participant's characteristics were no ambulation, no conventional communication skills, and dependent on others for basic needs. Participants had the parent consent to participate in this study. The researchers used the Taxonomy of biobehavioral states observable by Guess was used in this study to assess the following states: (1) asleep with eyes closed, no body movements, no vocalizations; (2) awake agitated with eyes open, crying, or fidgeting; (3) awake inactive with eyes open with no apparent movement; (4) self-directed with eyes open with some visual, auditory, tactile, or olfactory orientation toward self; (5) visually attentive with eyes open and exploring the environment visually with little motor movement; (6) active reaching with eyes open, oriented to environment, and reaching/grasping objects within reach. Data was recollected over eight weeks (three days per week) and videotaped for 30 minutes (8:25am-9:10am). The researchers did observation in intervals of 10 minutes. The data was analyzed after seventy-two observations and graphed by visual inspection. Results demonstrated Participant 1 demonstrated an increase in active reaching during this study. Participant 2 was engaged in awake, visually attentive behavior with intermittent inactive states during the study. Participant 3 was engaged

with visually attentive, self-directed, and active reaching behaviors without sleep terms but demonstrated a decrease in his self-directed behavior during this study. Based on the findings, behavioral states may be a resource to measure activity engagement in children with severe disabilities. This tool provides an opportunity to identify a list of unique behaviors for individuals with severe disability. Multisensory environment (MSE) promotes communication between professionals and individuals with disabilities, to avoid a lack experiences during physical activity.

The article by Jaarsma, E. A., Dikstra, P.U., Blécourt, A.C.E., Geertzen, J.H.B., & Dekker, R. (2014), was titled, Barriers and Facilitators of Sports in Children with Physical Disabilities: A Mixed-Method Study. Thirty children with physical disabilities participated in this study. These children were registered at the Prince Johan Friso Mytyl school, Haren the Netherlands, a special school for children with physical disabilities. The parents were invited by mail to participate in the study. This study used a mixed-methods design. Questionnaires were completed by children and their parents and combined with interviews with health professionals. Quantitative: This study used a chi-square test to analyze differences in barriers and facilitators between active and passive children. The McNemar test was used to analyze differences between children and parents. Also, this study used a Mann-Whitney U test to analyze differences in the number of experienced barriers and facilitators between active and passive children. Qualitative: The first author recorded the interviews, thematic analysis, video tape and transcript. For the security of the participants, each participant was assigned an identification number. The study found diversity factors during the sports activities in children with physical disabilities. The most frequently diversity factors were disability as a barrier to sports participation by children with disabilities. Another diversity factors are lack of sport facilities; transportation; children with

disabilities not feeling accepted by others; lack support from family; and organizing sports during school hours. Those factors create a challenging environment during sports activities in children with severe physical disabilities. Meanwhile, physical activity promotes psychological engagement.

Two of the four articles discussed parental support as a barrier. A study titled *Does the* Severity of Disability Matter? The Opinion of Parents About Professional Support in Residential Facilities by Luijkx, J., Ten Brug, A., & Vlaskamp, C. (2015) was done to determine whether and how the opinions of parents and/or legal guardians vary for different groups of persons with intellectual disabilities. The participants in this study included 1,824 parents or legal guardians of individuals with intellectual. The researchers used the Groningen Care Barometer was used to assess quality in support of parental or legal guardians. The researchers had the parents' council permission to participated in the study. MANCOVA were conducted to compare the opinions of parents or legal guardians. This study demonstrated that the parents or legal guardians of individuals with intellectual disabilities were given fewer opportunities to do leisure activities. The parents or legal guardians opinion depends on the level of severity in the individual with intellectual disabilities during leisure activities. Parents or legal guardians suggested collaboration in defining how leisure activities should be appropriate for individuals with profound intellectual and multiple disabilities. The researcher suggested increase facilities in volunteers to cater for quality in leisure activities. Also, parents or legal guardians have their own perspective on the quality of support during leisure activities. This study provided knowledge about developing better needs and preference support for individuals with intellectual disabilities.

A study done by Sterbová, D., & Kudlácek, M. (2014) titled *Deaf-Blindness: Voices of* Mothers Concerning Leisure-Time Physical Activity and Coping with disability, involved five mothers of children with deaf-blindness who participated in this study. The authors had the following criteria: (a) deaf-blind has to be congenital, (b) child's age was between 15 and 21 years, (c) the child has to be in the community transition process. Interested participants have to consent to participation in the study. The researchers conducted pilot-interviews to obtain basic information about physical activities. The interview guide was approved by independent experts. The pilot interview questions were: (a) How important are leisure time physical activities in your family?; (b) Is your family taking part in organized leisure time physical activities?; (c) Which activities can be done with your child who has DB?; (d) Are the options of leisure time physical activities sufficient? The purpose of the mother interview questions was to recollect data about family life interaction between children with deaf-blindness. The researchers used identification of emergent themes analyze the data. The interviews were recorded by video tape. Also, the two researchers used journal entries and field notes during the interviews. This study shows, no families participated in adapted physical activities and none offered opportunities to the child to enjoy physical activity. Most mothers used the disabilities as a barrier to not participate in physical activities.

Emergent theme: needs of children with deaf-blindness and their families

Mothers believe that physical activity can improve the recognition of day/night activities in their children. In accordance with the participants' perceptions, the level of prompting is important to increase the physical activity engagement in DB children. Parents observed motivation, appropriate behavior and joy when their children participated in physical activity.

Mothers desired an increase in the facilitation of programs that include children with deafblindness with appropriate physical activity and communication techniques.

Emergent theme: Situation in families

The family composition of the DB children in this study was Caucasian. All children had personal assistants but they had independent mobility. All children attended a boarding school during the week.

The participants of this study believed in the benefits of physical activity as a way to facilitate a healthy life in their children with DB. They encouraged the facilitation of support, camps, equipment and paraprofessionals to share common family activities. Finally, both articles emphasized the support for parents, sport activities, leisure activities, and camps for children with severe disabilities.

Curricular Ideas or Programming

For this subcategory, curricular ideas or programming means the best way to introduce physical activities concepts to children with serious disabilities. Examples of this subcategory are modifying rules, exercise programs, adapted sports, and assessment. A total of four articles qualified for this subcategory.

The study by Bernabe, E. A. & Block, M. E.(1994) titled *Modifying Rules of a Regular* Girls Softball League to Facilitate the Inclusion of a Child with Severe Disabilities, explored one critical aspect of inclusion in youth sports: the feasibility of modifying a traditional park district girls' fast-pitch softball program. The researchers asked a 12-years old female participant with moderate to severe disability to participate in the study. The participant had the parents' consent to participate in this study. The study took place during a females' fast-pitch softball league.

Batting average, on-base average, and total bases were analyzed in this study. Also, the time per inning and balls hit to outfield positions were recorded. The collection of the data took place during team games. The researchers recorded the data in the statistical softball book. Correlation was used for batting and on-base averages. To compare female batting average, the researchers used one sample t test. During the descriptive aspect, the researchers used z scores, means and standard deviations. ANOVA was used to identify significant differences between the balls hit to center field compared with the balls hit to the other outfield positions. According to the batting results, the participant demonstrated success with her peers. The female has a difference in the batting average but if walks were eliminated for the other girls, the female has a similar on-base-percentage. The conclusion was that the presence of this female in softball sport did not demonstrate a difference in the time between the transitions of the game. The level of inclusion for this female was completely successful in her softball games and her peers experienced disability awareness during the activity. Nobody gave negative feedback to this player with severe to moderate disabilities. The coaches needed to be considerate and be careful with the students' modifications in terms of how well the individual could play during the game to avoid frustration. Finally, the females' peers looked to her as a productive member of their team.

A study titled *Psychosocial Effects of Competitive Boccia Program in Person with Severe Chronic Disability* by Barak, S., Mendoza-Laiz, N., Guiterrez-Fuentes, M. T., Rubiera, M. & Hutzler Y. (2016) was to analyze the effect of a competitive Boccia training program on quality of life, self-esteem, anxiety, and mood states compared to a recreational Boccia training program and no specific physical activity training in residents of a comprehensive rehabilitation center for persons with severe chronic disabilities. Forty-three participants with a severe disability participated in this study. All participants fulfilled the requirement by the researchers, (1)

disability involving four limbs to at least moderate extent, (2) functional ambulation with manual or power wheelchair, and (3) the ability to follow instructions and to complete questionnaires with or without assistance. Exclusion criteria was dependent on the changes in the medical condition. The researchers had the participants' consent to be part of the study. Participants were residents in Spanish State Referral Center (SRC). Participants were divided in four groups, two competitive Boccia groups: independent competitive (IC, 9) and nondependent competitive (NIC, 7), recreational Boccia (14) and control (13). The control group did not participate in any physical activity. The researchers used Profile of Mood States (POMS) to assess six dimensions of transient mood states: anger, confusion, depression, fatigue, tension and vigor; and State-Trait Anxiety Inventory questionnaire was used to assess current anxiety symptoms and a generalized inclination to be anxious. The questionnaire was composed of two sections: anxiety-state and anxiety-trait. World Health Organization Quality of Life-BREF assessment was used to assess quality of life and consisted of 26 items. Rosenberg Self-Esteem consisted of 10-items and was used to assess individual self-esteem by establishing both negative and positive feelings about the self. General Health Questionnaire-28 was used to assess common mental health problems of anxiety, depression, social withdrawals, and somatic symptoms. Most participants needed the fine motor control test by their occupational therapist to make the assistance decision. The preand post-test was administrated by qualified personnel of the SRC (two certified psychologists and a certified occupational therapist) and those tests had four months between the post-test measuring. The participants received practice with throwing balls to different targets, technical and tactical drills week training three times in the week (1.5 hours) and repetitive strength training two times in the week. Correlations were calculated in this study. During a mutual decision, the researchers used a statistical model with covariates for determined between-group

differences. To determine differences in dependent variables the multivariate analysis of variance (ANOVA) and to determine one-way multivariate analysis of variance the MONOVA was used by the researchers. The comparison between pre-and post-test was determined using a dependent *t*-test.

The Boccia Program gives opportunities to increase the physical-health- related quality of life in athletes with severe disabilities and positively related to psychosocial function. This study shows that persons with disabilities can increase overall mental well-being. The training must be according to the athletes' needs to avoid fatigue during rigorous training. The researchers recommended boccia and power soccer as sport for individuals with severe disabilities.

The other article titled *Effect of Physical Exercise Programme on Gross Motor Function of Children with Cerebral Palsy* by Bhutia, C.D., Nair, U.S, & Surujlal, J. (2015) was to measure the effect of a physical activity program on gross motor function in children with cerebral palsy using an accepted and validated outcome measure: The Gross Motor Function Measure (GMFM). Ten children (nine males and one female) with cerebral palsy aged 13-18 years participated in this study. For the criteria of this study, the only qualification was being diagnosed in the Gross Motor Function Classification System (GMFCS) levels I and II. They were from the Institute for Mentally Challenged in the Thiruvananthapuram district of Kerala, South India. The researchers used the test of Gross Motor Function Measure (GMFM) to assess five dimensions of gross motor function, namely a) laying and rolling; b) sitting; c) crawling and kneeling; d) standing; and e) walking and running. During the semester the experimental group performed the prescribed exercise three times for a week in a period of 12 weeks. Each session lasted 50 to 60 minutes. Data Analysis: GMFM scores were analyzed by using descriptive

statistics, ANCOVA, and parried t-test to ascertain significant differences between the groups. The level of significance were described as: p<0.01 and p<0.05. The pre- and post-test in the control and experimental group showed some differences in the lying and rolling; sitting, standing and the total GMFM.

The results did not show differences in walking; running and jumping; and crawling and kneeling in the experimental group. On another hand, GMFM for the control group did not show change during the training period. This study supports the claim that physically active children with cerebral palsy can improve their gross motor functions. Significant results occurred when the researchers include training session with strengthening exercise which resulted in an improvement in standing skill. The results suggested open space to encouraged experiences in different postures as a possible, such as lying prone (face downward), supine (face upward) and sitting potions. The researchers suggested freedom opportunities promote interaction among the children with severe disabilities. These results of the study should encourage physical educators to promote physical activity programs and more facilities for children with cerebral palsy.

The last article by Jasma, P., Decker, J., Ersing, W., McCubbin, J. & Combs, S. (1988) titled *A Fitness Assessment System for Individuals with Severe Mental Retardation*, was to present an overview of The Ohio State University's Project Transition and provide a detailed review and discussion of a research-based assessment system, with a particular emphasis upon scoring. One hundred fourteen adults with severe intellectual disabilities participated in this study. Those participants attended the Columbus (Ohio) Developmental Center. The researchers administrated the developed fitness and health/hygiene test and scores on the Adaptive Behavior Scale. This data was collected in 14 weeks for 45 minutes per session. This study demonstrates qualitative and quantitative measurements in the development of five skills to have functional

value. Those skills include: 300-yard run/walk (cardiorespiratory endurance), grip strength, modified sit-ups (abdominal endurance), modified bench press (upper body strength and endurance), and modified sit and reach (lower back and hamstring flexibility). A qualitative measure gives the level of independence in the participants. The independence test consisted of a response to a command and evaluation of the level of the prompts that the participants need. Some percentage calculations were based on the number of steps completed independently divided by the number of steps in the skill x 100= percent score. Quantitative measure was used to assess performance in the five physical fitness skills. The participants needed to complete the skill's goal, instructional objectives, and task analysis steps. The results showed an increment in the level of abilities. The researchers found that level of dependence can be assessed with a task analysis checkmark assessment. The researchers found that the transition task analysis assessment can be a resource to evaluate individuals with severe disabilities. This assessment may include the evaluation of more than one task. The researchers recommended this assessment to measures performance outcomes in individuals with severe disabilities. Project Transitions assessment system is important because provide measure in the score sheet, specific information related to percentage of task completion, level of prompting, skill performance, taskanalyzed step descriptions, and reinforcement strategy for individuals with severe disabilities.

Chapter 4

Discussion

The purpose of this chapter is to discuss the conclusions derived from the critical mass of articles on evidence based-practice in physical activity for children with serious disabilities.

During this synthesis, 10 research articles related to physical activity for children with disabilities (from moderate to serious) were analyzed to determine the most effective and appropriate practices for this population.

The discussion of this synthesis will answer the following research questions: (1) What are the evidence-based practices to provide physical education services to children with serious disabilities?, (2) What are the barriers/facilitators to providing effective physical education when working with children with serious disabilities?; (3) What are the programmatic recommendations based on these evidences based practices and barriers?; and (4) What are the potential areas in need of further investigation for successful physical education instruction for children with serious disabilities?

What are the evidence-based practices to provide physical education services to children with serious disabilities?

After analyzing the results of the critical mass, literature suggest that the best evidence based practice to promote the development of an active lifestyle for children with serious disabilities is aquatics (Aidar et al., 2007; & Vascáková et al., 2015). Literature recommends aquatic activities as a resource to promote physical activity and the development of social skills in children with serious disabilities (Aidar et al., 2007; Vascáková et al., 2015; & Sato et al., 2015). Vascáková et al., (2015), recommend aquatic activities to promote the development of

motor skills of these children. The results of the Vascáková, et al., (2015) study demonstrated that aquatic activities could increase the child's orientation, gross motor skills, range of motion and ultimately interactions with peers in the aquatic environment. In addition, this study reveals that children that participate in aquatic activities can successfully increase their percentages in the measured aquatic skills (control of breathing to a 70%, improve their independence when submerging in water to a 62%, and increase their mobility in water to a 90%) after intervention. Further, in another study, Aidar et al., (2007) also provided evidence on how children with serious disabilities can benefit from aquatic activities, showing increases in motor ability and functionality.

Literature also suggests to physical educators working with these children in the aquatic environment that they must be trained to meet the needs of their students (Sato et al., 2015). Further, Vascáková et al., (2015) recommended the control of water temperature. They mention that providing warm temperatures in the swimming pool will help increase students' range of motion in body extremities. In addition, they recommended that physical educators must modify activities, use adapted equipment and provide information to the student to be successful in the aquatic environment. Lastly, the use of positive reinforcement and behavior modification techniques, for example using a token economy, should be used to increase student participation, effort and peer interaction during aquatic activities (Sato et al., 2015).

What are the barriers to providing effective physical education when working with children with serious disabilities?

Four articles from the critical mass were found that agree with the fact that the perception of people towards children with serious disabilities is the major barrier that these children encounter (Tucson & Candler, 2010; Luijik, Burg & Vlaskamp, 2015; Jaarsma et al, 2014; & Stérbova, & Kudlacek, 2014). Further, other identified barriers are: communication, lack of leisure/ recreational activities, lack of support and limited access to modified equipment, activities and rules. Many people assume that children with serious disabilities are not able to do anything but they haven't taken he time to get to know and understand the child.

Luijkx, Brug & Vlaskamp (2015), discovered though their study that children with serious disabilities lack opportunities to participate in physical activity because event facilitators do not look for ways to include these children. In this article, they describe how parents feel when they saw that their children did not receive the same quality of services in comparison to other peers with less serious disabilities. For example, the level of support in the care homes or to how day-to-day support was provided to their loved ones by the staff. Parents emphasized that children with less severity received better opportunities and services. Further, parents mentioned that they were less satisfied with the support received during leisure activities. This is also true when talking about leisure/ recreational activities in the community (Samalot-Rivera, & Aiello, 2018).

Stérbová, & Kudlácek (2014), highlighted how support groups with children with serious disabilities could help children feel more included in society. Likewise, the support of paraprofessionals or close family friends could increase the opportunity to participate in physical activity. The lack of these support causes that children with serious disabilities to have little

access to physical activity participation, creating a barrier in the creation of programs that meet the needs of children. Another barrier found in the literature was the lack of equipment modification or rules. Two articles discussed the importance of the instructor's knowledge when making a modification to equipment or rules during physical activities or sports.

Jaarsma, Dijkstra, Blecourt, Geertzen, & Dekker (2014); and Stérbová, & Kudlácek, 2014, explored the teachers' knowledge about adapted sports. Teacher words were, "information, well, they will pay attention to that during the physical education classes, obviously. But I do not think that it is clear to everybody what possibilities there are "(Jaarsma, Dijkstra, Blecourt, Geertzen, & Dekker, 2014).

Tunson & Candler (2010), explained how to communicate with a child with serious disabilities through observation of behavior. It is difficult to measure communication outcomes between the student and the teacher when the student is non-verbal. Tunson, J., & Candler, C. (2010) used the Taxonomy of Biobehavioral States Observable by Guess (single-system system) to obtain a response on student behavior as a resource to evaluate student performance.

Behavioral states could be an authentic assessment for those students who are not verbal and can be successful at physical activity.

What are the programmatic recommendations based on these evidences based practices and barriers?

Four articles were analyzed for answering this question. Literature suggested adapted sports, rules-team modification, task analysis, extracurricular activities, peer tutor, and paraprofessionals could help children with serious disabilities to be more successful during physical activity.

Barak, Mendoza-Laiz, Gutierrez-Fuentes, Rubiera, and Hutlzer (2016) recommend appropriate modifications during the training of Boccia to increase the psychosocial status in the child. This study showed that individuals who participate in the sport of Boccia can increase their self-esteem, well-being, and quality of life and reduce stress or anxiety. In addition, Benabe, & Block, (1994), discussed how rules modifications in softball provided an opportunity to change the negative perspective of including children with serious disabilities in sports. Depending on the severity of the disability, the modifications are created and the children can be successful during physical activity. Benabe, & Block, (1994), suggested performing appropriate physical activity that impact on the child's transition to community activities.

Sandt, Flynn & Turner (2014), used golf as a long-term activity with the purpose of continuing practice in community activities. This type of physical activity offers the opportunity to promote independence. Samalot-Rivera, & Aiello (2018) recommend the following steps to promote recreational activities or sports transition to the community, (1) determine the needs and skills of the student; (2) take into consideration the student's and family members' interests; (3) identify available community: based-programs; (4) identify support personnel willing to collaborate; and (5) assess the student's level of satisfaction and progress over time. Sandt, Flynn & Turner, (2014), explained how these suggestions could have a positive impact on the future of those children because they can have a higher probability of acquiring independent living skills in the acquisition of employment.

Jansma, Decker, Ersing, McCubbin, & Combs (1988) used task analysis as an appropriate instrument for evaluating skills according to the level of percent independence. This assessment included task completion, prompting level, skill performance, task-analyzed step description, and reinforcement strategy with individuals with serious disabilities. Therefore, Houston-Wilson &

Block (2018), recommend the use of an assessment task analysis as a method of goal creation. Goals can help chart the level of independence, and the performance of children with serious disabilities. Houston-Wilson, & Block (2018), provided the authentic assessment task analysis in levels such as, (1) total physical assistance (those who must physically be put through the full motion of the task would receive a score of 1), (2) partial physical assist (those who require only guidance or touch cues would receive a score of 2), and (3) independent (those who can complete the task without physical assistance receive a score of 3).

Grenier, & Miller (2015), recommend the use of peer tutoring during physical activity to increase the interaction between students. Using peer tutoring promotes the creation of communication and being a strong commitment academically between students with or without serious disabilities. Also, Klavina, & Lieberman (2018), suggest a training for tutoring peers that includes:

- (1) Verbal instruction: Tell your friend what to do and how to do it. If they do not respond correctly, then add a demonstration or model.
- (2) Demonstration: Show your friend how to do it. If they do not respond correctly, then use physical assistance.
- (3) Physical assistance: Help your friend how to do it. Physical assistance is the highest level of prompting.
- (4) Positive specific feedback: Give feedback that is both positive specific feedback i.e., feedback that is both positive and related to the skill.
- (5) Error correction, if needed: Help your friend figure out the problem.

For this learning technique to be successful, the teacher must ensure that the goals are in accordance with the student's IEP. Peer tutoring ensures the interaction among students of the same age in an inclusive environment.

Aiello, & Lieberman (2018), recommend the use of instruction 1:1 between paraprofessionals and students. Paraprofessionals help in the teaching of children with serious disabilities during the school day. The role of the paraprofessional is important in the gym. Students with serious disabilities to have greater success in the physical education class with the help of a paraprofessionals. Aiello, & Lieberman (2018) recommended a training for paraprofessionals that includes: a clear job description for the role of the paraprofessionals in physical education; a review of goals and objectives for students with disabilities in physical education; use of a documentation log either electronically or written in which paraprofessionals can document daily notes; a supply of rubrics or observation tools for each unit; make modifications to equipment, rules, or activities to support student learning; creation of guidelines for interacting with the student; a review of guidelines for social interactions with peers; a description of the protocol for talking to the student in physical education; supervising the student during physical education; returning the student to the classroom; encouraging the paraprofessional to assist all students in the class when possible; provision of feedback before, during, and after class; and the provision of in-service days. Finally, paraprofessionals can contribute by providing valuable information about the student to classroom teachers, therapists and parents.

What are the potential areas in need of further investigation for successful physical education instruction for children with serious disabilities?

According to Sato et al. (2015), a review of the researcher of credits taken in Adapted Physical Education courses in teacher preparation programs and the impact of teacher candidates' knowledge have to be evaluated. Further, they recommend evaluating the teacher candidates experience in inclusive environments to change the teachers' perspective towards the diversity of disabilities. Stérbová, et al. (2014), urges that teachers have greater knowledge in adaptation in physical activity or equipment to increase inclusion in leisure activities for children with disabilities. They also recommend an increase in support for parents with children with serious disabilities in recreational activities. Further, they encourage greater access to special schools or care centers, special programs, camps, adapted equipment, parental support and additional paraprofessionals working with children.

Another are to be considered and in need of future development is the use of paraprofessionals and their role in adapted physical education (Aiello, & Lieberman, 2018). They recommend the use of paraprofessional training to provide the best possible education and services for children with severe disabilities. Paraprofessional' training should be part of every adapted physical education program to facilitate better instruction and proper development of children with serious disabilities (Aiello, & Lieberman, 2018).

Chapter 5

Conclusion

The purpose of this synthesis was to determine evidence based –practice, barriers, curricular ideas and programing for individuals with severe disabilities. Literature suggests that the aquatic environment is the most appropriate environment for physical activity for individuals with serious disabilities. The aquatic environment promotes in these children the opportunity to increase their motor performance, reduce spasticity, increase the range of limb movement and increase social interaction, which ultimately helps to develop social skills. It is recommended that all professionals that potentially will work with children with serious disabilities obtain professional preparation in adapted physical education, specially, aquatics to provide proper instruction and care for children with severe disabilities.

In terms of the barriers that children with severe disabilities encounter, literature reveals that the main barriers are people's perceptions of disability and the level of support needed by the children. Many people get carried away by the physical aspect of the child and make assumptions about children's motor skill abilities. Further, results from the literature reveal that parents expressed that their children with serious disabilities received less support than classmates with other disabilities. For example, the level of support in the care homes or to how day-to-day support was provided to their loved ones by the staff Parents expressed lack of inclusive recreational or extracurricular programs for their children with serious disabilities. On the other hand, literature suggests that the support of relatives, close friends or paraprofessionals would help the child participate successfully in leisure activities or in recreational programs.

An important suggestion in the literature was the importance of professional preparation when working with modifying activities for children with serious disabilities. Personnel working with this student population must get information or professional preparation on how to plan, teach, modify instruction and properly assist these students so they can fully participate and all their needs are covered.

Future Research

After conducting a literature review on this topic, it is evident that there is not a lot of research that involves students with serious disabilities in physical education or in a physical activity setting. In order to find more information on best practices to work with this population, research on the effects of physical activity and best practices needs to be done. One suggestion for future studies would be to focus on research that measures the effects of physical activity and its impact on the child's transition to community activities. Some articles focused on children's performance (psychomotor domain) and not on the affective domain of the child. Instructors need to be able to understand buoyancy, primitive reflexes, and biomechanics. Example: bring your knee to the chest to help with flotation.

Findings of this literature review present the benefits of teachers using adaptive sports when planning instructions for children with serious disabilities. Further it reveals the benefits of focusing on all three domains (cognitive, psychomotor, and affective) when developing goals for students' IEPs. Another area to explore will be the benefits and effects of children with serious disabilities when participating in extra-curricular activities like modified sports, and games.

Also, more attention needs to focus on the use of modified equipment during adapted physical

education class. Finally, it is important that future professionals and researchers take to in to consideration the needs of support needed by parents and families of these children.

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Data Analysis Coding Grid

APA Citation	Purpose	Participants	Data	Results	Conclusion	Recommen
Citation			Collection Analysis			-dations Research
			Anarysis			Notes
			Question 1	<u> </u>		11000
Aidar,	The	This study	The	In the	This study	Future
F.J., Silva,	purpose	was done in	"Pediatric	presented	demonstrated	research:
A.J., Reis,	of this	the period of	Evaluation	results	that aquatic	Measure
V.M.,	study	March to	Disability	indicate	activities	cognitive
Carnerio,	was to	June 2006.	Inventory"	that	improve the	and
A.L.,	evaluate	Twenty-one	(PEDI)	aquatic	range of	affective
Vianna,	the	children	with	environm	movement.	outcome in
J.M., &	process	(nine	manual	ent	Aquatic	children
Novaes	of	females and	abilities	promotes	environment	with
G.S.	teaching-	twelve	was used	social	as the best	cerebral
(2007).	learning	males) with	to assess	function	exercise to	palsy during
Aquatic	in what	severe	the pre-test	and	maintain the	aquatics
Activities	is	cerebral	and post-	motor	conditioning	activities.
for Severe	referred	palsy aged	test	abilities	of	
Cerebral	to as the	between one	evaluation.	in	conditions,	
Palsy	social	and twelve	The PEDI	children	recreation,	
People	function	years	consisted	with	sport, and	
and	and the	participated	of social	cerebral	gets better	
Relation	ability of	in this study.	function,	palsy.	cognitive	
with the	handling	The	attendance,	The	aspects in	
Teach-	paper	researcher	meaning of	participan	children with	
Learning	and	chose the	the words,	ts	cerebral	
Process.	pencil in	participants	understand	improved	palsy.	
<i>FITNESS</i>	children	based one	ing	the	Aquatic	
Performan	with	the	complex	ability to	physical	
ce	Cerebral	locomotion	sentences,	handle	activity gives	
Journal,	Palsy	way and the	functional	paper and	the	
6(6), 377-	submitte	diagnosis of	communic	pencil.	opportunities	
381.	d to the	severe	ation,	Another	for improve	
	program	cerebral	problem	result is	resolution of	
	of	palsy. Those	solving,	the	problems,	
	aquatic	interested in	peer's	aquatic	interaction	
	physical	participating	interaction	environm	with	
	activities	in this study	s and play	ent	companions,	
		signed the	skills. The	promote	games with	
		consent	evaluation	social	objects,	
		form.	with	function	domestic	
			manual	between	tasks,	

			abilities	children	community	
			consisted	during	functions and	
			in the	aquatic	interactive	
			manipulati	physical	social games.	
			on of	activities.	The water	
			paper and	Also,	activities	
			pencil.	aquatics	would be the	
			penen.	games	best	
			The study	could	teaching-	
			took place	facilitate	learning	
			during	the	environment	
			sixteen	children	as they	
			weeks with	cognitive,	improve	
			two classes	with	social skills,	
			in the	improve	motor skills,	
			week (45	ment in	and promote	
			minutes).	prehensio	independenc	
			The	n of	e in	
			instructor	objects,	individuals	
			submitted	attention	with severe	
			the pre-	and	cerebral	
			and post-	learning	palsy.	
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			completing	Moreover		
			ten	, water		
			sections.	would		
			The data	stimulate		
			was	circulatio		
			analyzed	n,		
			using the	breathing		
			T-test in	, and		
			the SPSS	improve		
			program.	posture.		
			Question 3			
Barak, S.,	The	Forty-three	Profile of	Between-	The Boccia	The
Mendoza-	purpose	participants	Mood	Group	Program	researchers
Laiz, N.,	of this	with a severe	States	Differenc	gives	recommend
Guiterrez-	study	disability	(POMS)	es in	opportunities	ed creating
Fuentes,	was to	participated	was used	Psychoso	to increase	careful
M. T.,	analyze	in this study.	to assess	cial	the physical-	volume and
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M. &	of a	participants	dimension	rs did not	related	throwing
Hutzler Y.	competiti	fulfil the	s of	reveal	quality of life	training. For
(2016).	ve	requirement	transient	differenc	in athletes	future
Psychosoc	Boccia	by the	mood	es in the	with severe	studies, the
ial Effects	training	researchers,	states:		disabilities	researchers

of	program	(1) disability	anger,	study	and	can follow-
Competiti	on	involving	confusion,	group.	positively	up the
ve Boccia	quality	four limbs to	depression,	group.	related to	psychosocia
	of life,	at least	fatigue,	With-	psychosocial	l benefits of
Program in Person	self-	moderate	tension		function.	
				Group		physical
with	esteem,	extent, (2)	and vigor.	Changes	This study	activity
Severe	anxiety,	functional	State-Trait	from Pre-	shows that	during
Chronic	and	ambulation	Anxiety	to Post-	persons with	postseason
Disability,	mood	with manual	Inventory	test	disabilities	and take on
Rehabilita	states	or power	questionna	expose	can increase	account the
tion	compare	wheelchair,	ire was	improve	overall	age
Research	d to a	and (3) the	used to	ment in	mental well-	variable.
Developm	recreatio	ability to	assess	the	being. Also,	
ent	nal	follow	current	WHOQO	the	Limitations
Journal,	Boccia	instructions	anxiety	L-BREF	researchers	The
53(6),	training	and to	symptoms	Physical/	recommende	researchers
973-988.	program	complete	and a	Psycholo	d boccia and	used a
	and no	questionnair	generalize	gical test	power soccer	generic
	specific	es with or	d	and	as sport for	measuremen
	physical	without	inclination	Rosenber	individuals	t during
	activity	assistance.	to be	g Self-	with severe	psychologic
	training	Exclusion	anxious.	Esteem	disabilities.	al factors.
	in	criteria was	The	test.	The training	Between
	residents	dependent	questionna	test.	must be	groups the
	of a	on the	ire was	The	according to	variability
	compreh	changes in		Group	the athletes'	was large.
	ensive	the medical	composed of two	Size was	needs to	was large.
						Eutumo
	rehabilita	condition.	sections:	affected	avoid fatigue	Future
	tion	The	anxiety-	during	during	research
	center	researchers	state and	the Self-	rigorous	Include
	for	had the	anxiety-	Esteem	training.	psychosocia
	persons	participants'	trait.	test.		l effect of
	with	consent to be				sport
	severe	part of the	World	The		participation
	chronic	study.	Health	World		on person
	disabiliti	Participants	Organizati	Health		with severe
	es.	were	on Quality	Organizat		disability.
		residents in	of Life-	ion		
		Spanish	BREF	Quality		
		State	assessment	of Life-		
		Referral	was used	BREF		
		Center	to assess	(mood		
		(SRC).	quality of	states) in		
			life and	athletes		
		Participants	consisted	demonstr		
		were divided		ated		
	<u>i</u>	ore arvided	l	200	1	L

Т	in form	of 26	hotton	
	in four	of 26	better	
	groups, two	items.	results	
	competitive	D 1	than	
	Boccia	Rosenberg	medium/l	
	groups:	Self-	ow level	
	independent	Esteem	of	
	competitive	consisted	physical	
	(IC, 9) and	of 10-	activity	
	nondepende	items and	participan	
	nt	was used	ts. Also,	
	competitive	to assess	the level	
	(NIC, 7),	individual	of	
	recreational	self-	severity	
	Boccia (14)	esteem by	and sport	
	and control	establishin	type	
	(13). Control	g both	impacted	
	group did	negative	the	
	not	and	engagem	
	participate in	positive	ent of the	
	any physical	feelings	athlete's	
	activity.	about the	mood	
	uctivity.	self.	state.	
		5011.	Therefore	
		General	, the	
		Health	decreased	
		Questionn	performa	
		aire-28	nce	
		was used	occurred	
		to assess	during the	
		common		
		mental	training	
		health	based on	
		problems	negative	
		of anxiety,	physiolog	
		depression,	ical	
		social	effect.	
		withdrawal	G	
		s, and	State-	
		somatic	Trait	
		symptoms.	Anxiety	
			Inventory	
		Most	results	
		participant	demonstr	
		s needed	ated that	
		the fine	lower	
		motor	anxiety	

	1
control test	levels in
by their	athletes
occupation	are
al therapist	related
to make	with the
the	level of
assistance	participat
decision.	ion in
	exercise
The pre-	or sports
and post-	activities.
test was	
administrat	During
ed by	the
qualified	General
personnel	Health
of the SRC	Question
(two	naire-28
certified	the
psychologi	participan
sts and a	ts
certified	demonstr
occupation	ated
al · · ·	positive
therapist)	change in
and those	their
tests had	mental
four	well-
months	being.
between	
the post-	
test	
measuring.	
The	
participant	
s tossed	
balls to	
different	
targets,	
technical	
and	
tactical	
drills week	
training	
three time	
in the	
111 1110	

T T	
	week (1.5
	hours) and
	repetitive
	strength
	training
	two times
	in the
	week.
	WCCK.
	Data
	analysis:
	Correlatio
	ns were
	calculated
	in this
	study.
	During a
	mutual
	decision,
	the
	researchers
	used a
	statistical
	model with
	covariates
	for
	determined
	between-
	group
	differences
	. To
	determine
	differences
	in
	dependent
	variables
	the
	multivariat
	e analysis
	of variance
	(ANOVA)
	and to
	determine
	one-way
	multivariat
	e analysis

			of variance the MONOVA was used by the researchers . The compariso n between pre-and post-test was determined using a dependent			
			t-test.			
		<u> </u>	Question 3	<u> </u>	<u> </u>	
Bernabe, E. A. &	The purpose	A 12-years old female	Batting average,	Accordin g to the	The level of inclusion in	
Block, M.	of this	participant	on-base	female	this female	
E.(1994).	study	with	average,	batting	was	
Modifying	was to	moderate to	and total	results,	completely	
Rules of a	explore	severe	bases were	the	successful in	
Regular	one	disability	analyzed	participan	her softball	
Girls	critical	participated	in this	t	games. Her	
Softball	aspect of	in the study.	study.	demonstr	peers	
League to	"actively	The	Also, the	ated	experienced	
Facilitate	participat	participants	time per	success	disabilities	
the	ion" (full	had the	inning and	with her	awareness	
Inclusion	inclusion	parents'	balls hit to	peers.	during sports	
of a Child) in	consent to	outfield	The	activities.	
with	youth	participate in	positions	female	Nobody	
Severe	sports.	this study.	were	has a	made	
Disabilitie	The	The study	recorded.	differenc	negative	
s, Journal	feasibilit	took place	The	e in the	feedback for	
of the	y of	during	recollectio	batting	a player with	
American Society of	modifyin	females' fast-pitch	n of the data took	average but if	severe to moderate	
Society of Hypertensi	g a traditiona	softball	place	walks	disabilities.	
on, 19(1),	l park	league.	during	warks	The coaches	
24-31.	district	Tougue.	experiment	eliminate	needed to be	
2.31.	girls'		al team	d for the	considerate	
	fast-pitch		games.	other	and be	
	softball		The	girls, the	careful with	
	program		researchers	female	the students'	

111	1 1	1	1: C'	
could be	recorded	has a	modification	
included.	the data in	similar	to avoid	
	the	on-base-	frustration.	
	statistical	average.	Finally, the	
	softball	The	females'	
	book.	presence	peers looked	
		of this	to her as a	
	Correlatio	female in	productive	
	n was used	softball	member of	
	for batting	games	their team.	
	and on-	did not		
	base	demonstr		
	averages.	ate		
	To	differenc		
	compare	e during		
	female	game		
	batting	transition		
	average,	S.		
	the	ъ.		
	researchers			
	used one			
	sample t			
	test.			
	During			
	descriptive			
	purpose,			
	the			
	researchers			
	used z			
	scores,			
	means and			
	standard			
	deviations.			
	ANOVA			
	was used			
	to identify			
	significant			
	difference			
	between			
	the balls			
	hit to			
	center field			
	compared			
	with the			
	balls hit to			
	the other			
	are onter			

			outfield							
			positions.							
Dhutio	Question 3									
Bhutia, C.D., Nair, U.S, & Surujlal, J. (2015). Effect of	The purpose of the study was to measure the effect	Ten children (9 males and 1 female) with cerebral palsy aged 13-18 years participated	The test of Gross Motor Function Measure (GMFM) was used	The pre- and post- test in the control and experime ntal	This study supports the claim that physically active children with cerebral	There was more time in motor gross activity during the training.				
Physical Exercise Programm e on Gross Motor Function of Children with Cerebral Palsy.	of a physical activity program on gross motor function in children with cerebral	in this study. For the criteria of this study, the only qualification was being diagnosed in the Gross Motor Function	to assess five dimension s of gross motor function, namely a) laying and rolling; b) sitting; c) crawling	group showed some differenc es in the lying and rolling; sitting, standing and the total	palsy can improve their gross motor functions such as lying and rolling, standing, sitting, and leading. These results of the study	The researchers could promote daily activities to prepare the student in the community transition				
African Journal for Physical, Health Education, Recreation and Dance (AJPHER D), 1, 1-	palsy using an accepted and validated outcome measure: The Gross Motor	Classification System (GMFCS) levels I and II. They were from the Institute for Mentally Challenged in the	and kneeling; d) standing; and e) walking and running.	GMFM. The results did not show differenc es in walking; running and	should encourage physical educators to promote physical activity programs and more facilities for	researcher did not use video tape for another type of data recollection.				
13.	Function Measure (GMFM)	Thiruvanant hapuram district of Kerala, South India.	semester the experiment al group performed the prescribed exercise thrice a week in a period of 12 weeks. Each session lasted 50	jumping; and crawling and kneeling in the experime ntal group. On another hand, GMFM for the	children with cerebral palsy. Also, physical activity has to be included in the intervention strategies for children with cerebral palsy. This	Used a small group of APE students and generalized with the community of APE students class. Future research				

to 60	control	study	Include
minutes.	group did	contributes to	larger
iiiiiates.	not show	the health	groups to
Data	change	promotion	investigate
Analysis:	during	for children	children
GMFM	the	with cerebral	with more
scores	training	palsy.	severe
were	period.		disabilities.
analyzed	•		
by using	Significa		
descriptive	nt results		
statistics,	occurred		
ANCOVA,	when the		
and parried	researche		
t-test to	rs include		
ascertain	training ·		
significant	session		
differences	with		
between	strengthe		
the groups. The level	ning exercise		
of	which		
significanc	resulted		
e were	in an		
described	improve		
as: p<0.01	ment in		
and	standing		
p<0.05.	skill.		
	The		
	results		
	suggested		
	open		
	space to		
	encourag		
	ed		
	experienc		
	es in different		
	postures		
	as a		
	possible,		
	such as		
	lying		
	prone		
	(face		
	downwar		

	1	1	1	1	1	1
				d), supine		
				(face		
				upward)		
				and		
				sitting		
				potions.		
				The		
				researche		
				rs		
				suggested		
				freedom		
				opportuni		
				ties		
				promote		
				interactio		
				n among		
				the		
				children		
				with		
				severe		
				disabilitie		
				S.		
			Question 3			
Jasma, P.,	The	A hundred	The	The	The	
Decker, J.,	purpose	fourteen	researchers	results	researchers	
Ersing,	of this	adults with	administrat	showed	found that	
W.,	article	severe	ed the	an	the transition	
McCubbin	was to	intellectual	developed	increment	task analysis	
, J. &	present	disability	fitness and	in the	assessment	
Combs, S.	an	participated	health/hygi	level of	can be a	
(1988). A	overview	in this study.	ene test	abilities.	resource to	
Fitness	of The	Those	and scores	The	evaluate	
Assessme	Ohio	participants	on the	researche	individuals	
nt System	State	attended the	Adaptive	rs found	with severe	
for	Universit	Columbus	Behavior	that level	disabilities.	
Individual	y's	(Ohio)	Scale to	of	This	
s with	Project	Developmen	assess	dependen	assessment	
Severe	Transitio	tal Center.	when	ce can be	may include	
Mental	n and	ui Contoi.	deciding	assess	the	
Retardatio	provide a		whether to	with task	evaluation of	
n, Adapted	detailed		deinstitutio	analysis	more than	
Physical	review		nalize	checkmar	one task.	
Activity	and		(process of	k	Project	
Quarterly,	discussio		put the	assessme	Transitions	
	u15cu5510		լ բաւ աշ	assessine	1141151110115	
15 222	n of a		nationto in	nt	accaccment	
5, 223- 232.	n of a research-		patients in communit	nt.	assessment system is	

		-	TO 1		
based		y mental	The	important	
assessme		health	researche	because	
nt		centers)	rs	provide	
system,		someone.	recomme	measure in	
with a		This data	nded this	the score	
particular		was	assessme	sheet,	
emphasis		collected	nt to	specific	
upon		in 14	measures	information	
scoring.		weeks for	performa	related to	
This		45 minutes	nce	percentage of	
article		per	outcomes	task	
addresses		session.	in	completion,	
the issue		This study	individua	level of	
of fitness		demonstrat	ls with	prompting,	
assessme		es	severe	skill	
nt for use		qualitative	disabilitie	performance,	
with		and	s.	task-	
individua		quantitativ		analyzed step	
ls with		e		descriptions,	
severe		measurem		and	
disabiliti		ents in the		reinforcemen	
es.		developme		t strategy for	
		nt of five		individuals	
		skills to		with severe	
		have		disabilities.	
		functional			
		value.			
		Those			
		skills			
		include:			
		300-yard			
		run/walk			
		(cardioresp			
		iratory			
		endurance)			
		, grip			
		strength,			
		modified			
		sit-ups			
		(abdomina			
		1			
		endurance)			
		, modified			
		bench			
		press			
		(upper			

	1			1
		body		
		strength		
		and		
		endurance)		
		, and		
		modified		
		sit and		
		reach		
		(lower		
		back and		
		hamstring		
		flexibility).		
		-		
		Qualitative		
		measures		
		give the		
		level of		
		independe		
		nce in the		
		participant		
		s. The		
		independe		
		nce test		
		consisted		
		of a		
		response to		
		a		
		command		
		and		
		evaluation		
		of the level		
		of the		
		prompts		
		that the		
		participant		
		s need.		
		Some		
		percentage		
		calculation		
		s were		
		based on		
		the number		
		of steps		
		completed		
		independe		
		ntly		
		<u> </u>	1	

			divided by			
			divided by the number			
			of steps in			
			the skill x			
			100=			
			percent			
			score.			
			Quantitativ			
			-			
			e measure			
			was used			
			to assess			
			the			
			performan			
			ce in the			
			five			
			physical			
			fitness			
			skills. The			
			participant			
			s needed to			
			complete			
			the skill's			
			goal,			
			instruction			
			al			
			objectives,			
			and task			
			analysis			
			steps.			
т	D	D ()	Question 2		C 1 :	D 1
Jaarsma,	Purpose:	Participants:	Data	Results:	Conclusion:	Recommend
E. A.,	TO I		Collection	D 1	7771	ations-
Dikstra,	The	Thirty	analysis:	Personal	This mixed-	Research
P.U.,	purpose	children with	This study	<u>Factors</u>	study found	notes:
Blécourt,	of this	physical	used a	ъ .	diversity	TD1
A.C.E.,	study	disabilities	mixed-	Barriers:	factors	The
Geertzen,	was to	participated	methods	Teachers	during the	researchers
J.H.B., &	provide	in this study.	design.	and	sports	would
Dekker, R.	compreh	These	The	health	activities in	utilize the
(2014).	ensive	children	questionna	participan	children with	interview to
Barriers	informati	were	ires	ts	physical	validate the
and	on about	registered at	completed	mentione	disabilities.	parents and
Facilitator	the	the Prince	by children	d diaabilita	Those factors	children
s of Sports	barriers	Johan Friso	and their	disability	create a	concerns.
ın	and	Mytyl	parents	as a	challenging	

C1-11-1	C:1:4-4-	11		1		T ::4-4:
Children	facilitato	school,	were	barrier to	environment	Limitations:
with	rs of	Haren the	combined	sport	during sports	The parents
Physical	sport	Netherlands,	with	participat	activities in	and child
Disabilitie	participat	a special	interviews	ion.	children with	responses
s: A	ion of	school for	with health	Fatigue:	severe	were not
Mixed-	children	children with	profession	Teachers	physical	matched in
Method	with	physical	als.	and	disabilities.	the results
Study.	physical	disabilities.		health	Meanwhile,	sections.
Disability	disabiliti	The parents	Quantitativ	professio	physical	Researchers
and	es by	were invited	e: This	nals	activity	choose a
Rehabilita	triangulat	by mail to	study used	exposed	promotes	small
tion An,	ing data	participate in	chi-square	the	psychologica	sample size.
Internatio	from	the study by	test to	fatigue of	1	Results
nal,	children,	completing a	analyze	the	engagement.	cannot be
Multidisci	their	children's	differences	children	The most	generalized
plinary	parents	questionnair	in barriers	because	frequently	in children
Journal,	and their	e.	and	they have	diversity	with severe
37(18),	health		facilitators	a long	factors were	physical
1617-	professio		between	school	disability as	disability
1625.	nals.		active and	day and	a barrier to	population.
			passive	long	sports	P · P ·······
			children.	school	participation	
			McNemar	travels.	by children	
			test was	Health:	with	
			used to	Health	disabilities.	
			analyze	professio	Another	
			differences	nals	diversity	
			between	promote	factors are	
			children	participat	lack of sport	
			and	ion in	facilities;	
					<i>'</i>	
			parents.	sports	transportatio n; children	
			Also, this	(change	<i>'</i>	
			study used a Mann-	in	with	
				position of the	disabilities	
			Whitney U		not feeling	
			test to	body	accepted by	
			analyze	activities)	others; lack	
			differences	for	support from	
			in the	children	family; and	
			number of	in	organizing	
			experience	wheelcha	sports during	
			d barriers	irs.	school hours.	
			and	Fun: The		
			facilitators	most		
			between	important		
			active and	is		

Barriers
Lack of
sports
facilities:
Teachers
and
health
professio
nals
discussed
lack of .
opportuni
ties in
extracurri
cular and
communi
ty activities
with
limitation
in
transporta
tion.
tion.
Lack of
acceptan
ce:
Children
mentione
d
exclusion
when
they did
not feel
acceptanc
e their
peers.
Lack of
informati
on:
Parents
have a
lack of
informati

on in adapted sports opportunities. Facilitato rs: Children and parents mentione d social contact as a facilitator during sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator during sports activities is a possible facilitator when the parents	
sports opportuni ties. Facilitato rs: Children and parents mentione d social contact as a facilitator during sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	on in
sports opportuni ties. Facilitato rs: Children and parents mentione d social contact as a facilitator during sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	adapted
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ties. Facilitato rs: Children and parents mentione d social contact as a facilitator during sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	sports
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Children and parents mentione d social contact as a facilitator during sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
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sports activities. Family support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
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support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
support: Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	Family
Participa nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
nts discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	Participa
discussed that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
that family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
family support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	discussed
support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	that
support is a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	family
a positive influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	
influence in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	support is
in the child environm ent. Sports activities during school hours: It is a possible facilitator when the	a positive
child environm ent. Sports activities during school hours: It is a possible facilitator when the	
child environm ent. Sports activities during school hours: It is a possible facilitator when the	in the
environm ent. Sports activities during school hours: It is a possible facilitator when the	
ent. Sports activities during school hours: It is a possible facilitator when the	
Sports activities during school hours: It is a possible facilitator when the	
activities during school hours: It is a possible facilitator when the	CIII.
activities during school hours: It is a possible facilitator when the	
during school hours: It is a possible facilitator when the	
during school hours: It is a possible facilitator when the	activities
school hours: It is a possible facilitator when the	
hours: It is a possible facilitator when the	
It is a possible facilitator when the	
possible facilitator when the	
facilitator when the	
facilitator when the	possible
when the	
parents	
have a	have a

				busy		
				•		
			Ouestion 2			
Luijkx, J., Ten Brug, A., & Vlaskamp, C. (2015). Does the Severity of Disability Matter? The Opinion of Parents About Profession al Support in Residentia 1 Facilities, Child: Care, Health and Developm ent. 42(1), 8-15.	The purpose of this study was to determin e whether and how the opinions of parents and/or legal guardian s vary for different groups of persons with intellectual disabilities.	A thousand eight hundred twenty-four parents or legal guardians of individuals with intellectual disabilities participated in this study. All settings belong to the same government funded and services provider.	Question 2 Groningen Care Barometer was used to assess quality in support of parental or legal guardians. The researchers had the parents' council permission to start the study. MANCOV A were conducted to compare the opinions of parents or legal guardians.	schedule.	This study demonstrated that the parents or legal guardians of individuals with intellectual disabilities were given fewer opportunities to do leisure activities. The parents or legal guardians opinion regard the quality of support, depends on the level of severity in the individual with intellectual disabilities during leisure activity. This study provided knowledge about developing better needs and preference support for	Limitation: The influence of unknown confounding variables cannot be ruled out. The type of housing, and staff- client ratio can be unclear. Another limitation was the exposition of individuals with intellectual disabilities characteristi cs by their parents or legal guardians.

				profound disabilities share the same perception of lower opportunities for leisure activities. The researche r suggested increase facilities in volunteer s to cater for quality in leisure	with intellectual disabilities. Parents or legal guardians suggested collaboration in defining how leisure activities should be appropriate for individuals with profound intellectual and multiple disabilities.	
			Question 2	activities.		
Sterbová,	The	Five mothers	The	This	The	
D., &	purpose	of children	researchers	study	participants	
Kudlácek,	of this	with deaf-	used	showed	of this study	
M. (2014).	study	blindness	identificati	no	considered	
Deaf-	was to	participated	on of	families	the benefit of	
Blindness:	examine	in this study.	emergence	participat	physical	
Voices of	the	The mothers	themes to	ed in	activity to	
Mothers	beliefs of	had the	be	adapted	facilitate a	
Concernin	mothers	following	categorize	physical	healthy life	
g Leisure-	regarding	criteria: (a)	d in	activities	in their	
Time	the	deaf-blind	possible	and none	children with	
Physical	leisure	has to be	topics.	offered	DB. They	
Activity	time	congenital,	The	opportuni	encouraged	
and	physical	(b) child age	interviews	ties to the	the	
Coping	activities	between 15	were	child to	facilitation of	
with	of	and 21 years,	recorded	enjoy	support,	
disability,	families	(c) the child	by video	physical	camps,	
Acta	of	has to be in	tape.	activity.	equipment	
Gymnica,	children	the	Also, the	Most mothers	and	
44(4),	with	community	two		paraprofessio	
193-201.	deaf-	transition	researchers	saw the	nals to share	

blindness	process.	used	disabilitie	common	
omaness	Interested	journal	s as a	family	
	participants	entries and	barrier to	activities.	
	have to	field notes	not	detivities.	
	consent to	during	participat		
	participation	observatio	e in		
	in the study.	ns in	physical		
	in the staay.	family	activities.		
	The	camps.	detivities.		
	researchers		Emergent		
	conducted		theme:		
	pilot-		needs of		
	interviews to		children		
	obtain basic		with		
	information		deaf-		
	about		blindness		
	physical		and their		
	activities.		families		
	The		Mothers		
	interview		believe		
	guide was		that		
	approved by		physical		
	independent		activity		
	experts. The		can		
	pilot		improve		
	interview		the		
	questions		recogniti		
	were: (a)		on of		
	How		day/night		
	important		activities		
	are leisure		in their		
	time		children.		
	physical		In		
	activities in		accordan		
	your		ce with		
	family?; (b)		the		
	Is your		participan		
	family		ts'		
	taking part		perceptio		
	in organized leisure time		ns, the level of		
	physical activities?;		promptin g is		
	(c) Which		_		
	activities can		important to		
	be done with		increase		
L	oc done with	l	merease		

your child	the
who has	physical
DB?; (d) Are	activities
options of	engagem
leisure time	ents in
physical	DB
activities	children.
sufficient?	Parents
	observed
The purpose	motivatio
of the	n,
mother	appropria
interview	te
questions	behavior
was to	and joy
recollect	when
data about	their
family life	children
interaction	
between	participat ed in
children with	physical
deaf-	activity.
blindness.	Mothers
	encourag
	ed an
	increase
	in
	facilities
	or
	physical
	activities
	programs
	that
	include
	children
	with
	deaf-
	blindness
	with
	appropria
	ted
	adapted
	physical
	activities
	and
	communi
	Commun

			Question 2	cation technique s. Emergent theme: Situation in families The family compositi on of the DB children was Caucasia n. All children had personal assistants but they had independ ent mobility. All children attended a boarding school during the week.		
Tuncon I	The	There were	Question 2	Participa	Behavioral	Future
Tunson, J., &	purpose	three	Taxonomy of	nt 1	states may be	research
Candler,	of this		biobehavio	demonstr	a resource to	The
		children (3-				
C. (2010).	study	10 years)	ral states	ated an	measure	researchers
Behavioral	was to	with	observable	increase	activity	can
States of	examine	multiple	by Guess	in active	engagement	generalized

Children the severe was used reaching in children the	the results
The transfer of the second of	
	of a small
	sample
	within the
	severe
	disability
	population.
Environm evidence cs were no body nt 2 was list of unique	
ent, of ambulatory, movement engaged behaviors for	
Informa responsiv no s, no in awake, individuals	
Healthcar eness conventional vocalizatio visually with severe	
e USA, within communicati ns; (2) attentive disability.	
30(2), and on skills, and awake behavior MSE	
101-110. without a dependent agitated with promotes	
multisens on others for with eyes intermitte communicati	
ory basic needs. open, nt on between	
environm Participants crying, or inactive professionals	
ent. had the fidgeting; states and	
parent (3) awake during individuals to	
consent to inactive the study. avoid a lack	
participate in with eyes of	
this study. open with Participa experiences	
no nt 3 was during	
apparent engaged physical	
movement; with activity.	
(4) self- visually	
directed attentive,	
with eyes self-	
open with directed,	
some and	
visual, active	
auditory, reaching	
tactile, or behaviors	
olfactory without	
orientation sleep	
toward terms but	
self; (5) demonstr	
visually ated a	
attentive decrease	
with eyes in his	
open and self-	
exploring directed	
the behavior	
environme during	
nt visually this	
with little study.	

motor
movement;
(6) active
reaching
with eyes
open,
oriented to
environme
nt, and
reaching/g
rasping
objects
within
reach.
D-4
Data was
recollected
over eight
weeks (3
days per
week) and
videotaped
for
30minutes
(8:25am-
9:10am).
The
researchers
did
observatio
n in
intervals of
10
minutes.
The date
The data
was
analyzed
after
seventy-
two
observatio
ns and
graphed by
visual
inspection.
r

Question 1								
Vascáková	Purpose	Participants	Data	Results	Conclusion	Recommend		
, T.,	The	Ten children	collection	The	This study	ations		
Kudlácek,	purpose	with cerebral	analysis	participan	supports that	research		
M., &	of this	palsy and	The	ts with	the Halliwick	notes		
Barret, U.	study	combined	GMFM	diparetic	Concept	The		
(2015).	was to	impairments	test was	form of	(specific	researchers		
Halliwick	analyze	(6 males and	used to	cerebral	form of	recommend		
Concept	the	4 females)	assess five	palsy (2	water based	utilizing		
of	impact of	with a mean	dimension	males	therapy using	aquatic		
Swimming	Halliwic	age of 5.5	s of gross	and 1	aquatic	facilities		
and its	k	participated	motor	female)	environment	with warm		
Influences	Concept	in this study.	function:	improved	to assess:	water to		
on	on	The	(a) lying	GMFM	(a)individual	reduce		
Motoric	specific	participants	and	scores by	approach, (b)	spasticity,		
Competen	adapted	were	rolling,	4.25%.	personal one	functional		
cies of	aquatic	recruited	(b)sitting,	The	to one	strength,		
Children	skills	from special	(c)crawlin	participan	contact, and	mobility and		
with Severe	accordin	school in the	g and	ts	(c)	propriocepti		
Disabilitie	g to WOTA	aquatic setting of the	kneeling, (d)standin	improved gradually	independenc y of	on improvemen		
	evaluatio	rehabilitatio	g and	gradually .	swimmers)	ts, reduction		
S, European	n.	n center	(e)walking	(b)sitting	brings a	of		
European Journal of	11.	Elpis.	(c)waiking	-3.85%,	successful	subjective		
Adapted		Elpis.	•	(c)	technique to	problems		
Physical			Water	crawling	improve	and		
Activity,			orientation	and	aquatic skills	physiologic		
8(2), 44-			test	kneeling	and motor	al state.		
49.			(WOTA)	-2.81%,	skills			
			was used	(d)standi	performance	Limitations:		
			to assess	ng -	in children			
			quality of	4.37%,	with cerebral	It is		
			aquatic	and	palsy and	challenging		
			skills.	(e)walkin	combined	to teach		
				g,	impairments.	children		
			Halliwick	running	Children	with autism		
			Concept	and	with cerebral	in the pool		
			was used	jumping -	palsy	setting. The		
			to assess:	5.97%.	improved	researchers		
			(a)individu	In the	swimming	had lower		
			al	WOTA	skills (77%),	scores in the		
			approach,	score,	breathing	gliding and		
			(b)	participan	control	relaxation		
			personal	ts had an	(70%), and	activities		
			one to one	overall	water	post-test.		
			contact,	improve	submerge			

and (c) ment by (62%). Also, independe 8.33 the children ncy of points. improved swimmers. water Participa transfer The nts with (90%). It is instruction quadrupa recommende retic form was 1:1 d use warm during ten of temperature cerebral aquatic in the water section. palsy (2 for help Halliwick males reduce and 1 Concepts spasticity, were used female) functional during increased strength, mobility and aquatic their session as **GMFM** proprioceptio scores by improvement relaxation 5.20%. resource. **Improve** s, reduction of subjective ments: problems and (a)lying psychologica and rolling -1 state. As a 5.40%, final (b) sitting conclusion, -7.20%, Halliwick Concept is a (c) crawling resource to and improve quality lives kneeling with children -2.70%, (d) with cerebral standing palsy. 3.75%, and (e) walking, running and jumping -1.75%. The **WOTA** scores increased

by 9.67
points.
Those
scores
demonstr
ated
major
improve
ment in
the
diparesis
group
with the
differenc
e of 1.34
points.
Participa
nts with
autism (2
males
and 2
females)
increased
their
GMFM
scores by
1.57%.
Improve
ments:
(d)standi
ng -
3.50%
and
(e)walkin
g,
running
and
jumping -
2.80%. In
the
WOTA
scores,
the
participan
r

	ts increased by 1.16 points. This group was the higher scoring by 15.13 points.	
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