Winter 2025 Special Issue: Physical Activity for Individuals with Visual Impairment or Deafblindness

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The Voice and Vision of Special Education

Council for Exceptional Children
The voice and vision of special education

Cover photo description: The cover photo shows a coach running with an athlete with a tether on a wet sidewalk.

Photo submitted by Lauren J. Lieberman

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The Division of Visual Impairment and DeafBlindness of the Council for Exceptional Children Present:

2026 Online Pre-Conference

Register Now!

February, 27, 2026
9:00AM-4:00PM ET
CEUs: 3 hours per session for up to 6 hours total
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Sponsorships are available starting at $300
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Morning Session
AI for Practitioners: Practical Tools for Visual Impairment Professionals

February, 27, 2026
9:00AM-12:00PM ET
3.0 CEUs

In this session you will learn how TSVIs are applying new AI technology in their lessons and their practice with ideas for how you can make AI tools more accessible for your students. This session will also provide information on new modules and training materials that are available from the APH Hive.

Learning Objectives:

1. Participants will identify three practical ways to use Artificial Intelligence (AI) to streamline reporting and documentation in their professional practice.
2. Participants will discuss opportunities for students with visual impairments to use AI tools independently and appropriately.
3. Participants will name options for using AI in instructional planning and preparation.

Speakers

Dr. Belinda Rudinger, PhD

Dr. Belinda Rudinger is an assistant professor of special education at East Texas A&M University, a teacher of students with visual impairments, and an assistive technology specialist. She is actively involved in the field as a board member of the

Dr. Donna Clemens, PhD

Dr. Donna Clemens is an educator and Assistive Technology Consultant in the Outreach Department at the Texas School for the Blind and Visually Impaired (TSBVI). With almost three decades of experience as a Teacher of Students with Visual

Council of Exceptional Children (CEC) Division on Visual Impairments and Deafblindness (DVIDB), chair-elect for the Access and Technology division of the Association for Education and Rehabilitation of the Blind and Visually Impaired (AERBVI), and as the Deputy Vice President of the USA for the North American-Caribbean Region of the International Council for Education of People with Visual Impairment (ICEVI). Her work focuses on non-visual access to print and sustainability issues related to braille and assistive technology. She believes in the power of technology to promote empowerment and connection.

Impairments (TSVI) and Assistive Technology (AT) specialist, she has worked extensively in accessible technology, curriculum development, and professional learning for TSVIs in Texas. Dr. Clemens supports training related to braille technology and instructional strategies that help students access educational content and develop greater independence. She holds a Ph.D. in Special Education, a Master's degree in Dual Sensory impairments, and a Bachelor's Degree in Visual Disabilities.

Afternoon Session
Accessible Science Education & Engaging with APH Press

February 27, 2026
1:00PM-4:00PM ET
3.0 CEUs

In this session, attendees will be learning about the new book titled "Accessible Science Education for Students with Visual Impairments". An overview of the book will be covered as well as specific tips and tricks for both teachers of students with visual impairments and their science teachers with whom they collaborate. This session will also include a presentation with the APH Press team that dive into the latest educational releases and explore what new publications are on the horizon. Learn how you can contribute to our mission by submitting book proposals, becoming an author, editor, or peer reviewer, and much more.

Learning Objectives

1, Participants will understand how to submit and review proposals for APH publications
2. Participants will describe three new approaches to providing science instruction for students who are blind and visually impaired.
3. Participants will identify collaborative tools and teaching strategies to support classroom teachers in providing science instruction for students who are blind and visually impaired.

Speakers

Heather Spence

Heather Spence is the Director of APH Press at American Printing House (APH). Prior to this role, Heather spent over ten years at the American Foundation for the Blind (AFB), holding various positions, including Business Systems Manager and Product Fulfillment and Customer Service Manager. With over two decades of experience in the nonprofit sector, Heather has spent more than a decade focused specifically on the field of blindness and low vision.

Dr. Tiffany Wild, PhD

Dr. Tiffany Wild is an Associate Professor at Ohio State University in the College of Education and Human Ecology, Department of Teaching and Learning. She began her career as a middle school science and math teacher and became a Teacher of Students with Visual Impairments (TSVI) after working with students with visual impairments in the classroom. Dr. Wild has been awarded prestigious awards including a doctoral fellowship with the National Center for Leadership in Visual Impairments and Dissertation of the Year award by the Council for Exceptional Children's Division on Visual impairment. Dr. Wild's research focuses on accessible science education for students with visual impairments.

Message from the Guest Editors

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The Vital Role of Physical Activity for Individuals with Visual Impairment and Deafblindness

In a world that typically necessitates the use of visual cues with physical activity—watching a ball, experiencing a dance routine, traversing a hiking trail—the vision of movement for individuals with visual impairment or deafblindness is

often misunderstood and even more often underestimated. Yet, physical activity is not an extra add-on; it is essential for quality of life and self-determination. Physical activity is a cornerstone of personal health, independence, emotional well-being, and quality of life for all people, regardless of sensory ability.

For individuals with visual impairment or deafblindness, engaging in sports and physical activity is not only achievable—it is transformative. It promotes independence, autonomy, builds confidence, and nurtures the ability to self-advocate in moving through the world. Nevertheless, systemic barriers such as inaccessible environments, negative attitudes, lack of trained instructors, and societal misconceptions often inhibit full engagement. These difficulties are not unique to the specific disability—they are inherent in a world not yet designed for inclusivity of all people.

Why Movement Matters

The positive outcomes of physical activity are well-documented: improved cardiovascular health, enhanced muscular strength, improve balance and coordination, and minimize the risk of chronic diseases such as diabetes and heart disease. For individuals with visual impairment or deafblindness, these benefits are even greater. Physical activity along with sports and physical education can improve spatial awareness, motor skills, reduce the risk of falls, and support mental health by decreasing anxiety and depression. It also plays a crucial role in

socialization, providing ample opportunities for connection, camaraderie, teamwork, and mutual joy.

Yet, regardless of these advantages, individuals with visual impairment and deafblindness are found to be less prone to participate in routine physical activity. The reasons are multifaceted ranging from participants, teachers, and caregivers fear of injury, lack of transportation, limited access to necessary equipment, and lack of inclusive programming. For those who are deafblind, these challenges are multiplied by communication barriers and the need for very individualized support.

Reimagining Access and Advocacy

To address these inequalities, we as professionals must reimagine sport and physical activity through the of universal design for learning approach, and with the dignity of risk of every participant in mind. The editors of this feature highlight, the fact that individuals with visual impairments deserve the right to select their level of engagement and the amount of risk to take in physical activities, equal to their sighted peers. Consequently, we are creating environments where self-advocacy is consistently taught, accommodations are normalized, and expectations for every student are high.

Inclusive physical education, sport, physical activity and recreation are not just about adapting games—these essential activities are about changing mindsets. They necessitate collaboration among the multidisciplinary team, families,

healthcare providers, and the community to develop systems that support movement for a lifetime. From early childhood through older adulthood, physical activity must be viewed as a right, not a privilege.

Toward a Culture of Empowerment

The purpose of this feature is to highlight the voices, strategies, and true innovations that are shaping physical activity for individuals with visual impairment and deafblindness. Through evidence-based research practices, personal descriptions, and expert insights, we explore how movement for individuals with visual impairments or deafblindness can be a source of empowerment, and not exclusion.

Let us move beyond sight—and toward a future where everybody is expected to move, self-advocate, thrive, and belong.

We know that readers will find the information included in the articles in this feature issue informative and useful in your day-to-day practice.

President's Message

Adam Graves,

VI Program Coordinator, San Francisco State University

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As the calendar year comes to a close, so too does my time as President of DVIDB. As is often the case, this year has seen some areas of great progress for our organization combined with disheartening setbacks and losses. This year in particular seemed to be one of highs and lows unlike any we have experienced in the past.

In March and April DVIDB added over 400 new members thanks to the CEC's Access to All campaign. For those of you who are still new to DVIDB we

are so grateful you have joined us in our mission and hope you will continue to take advantage of some of our member benefits such as the free registration for our webinars and our online pre-conference, which you can learn more about in this issue of *VIDBE-Q*.

In July and September, we asked our members to ask their congressional delegations to protect the vital programs funded by grants authorized in Part D of the Individuals with Disabilities Education Act. Thanks, in part, to the efforts of dedicated and engaged individuals such as our members, many programs were spared in the most recent round of grant discontinuation. Unfortunately, 4 DeafBlind Projects, 3 Braille training projects, and 4 interpreter training programs, including the only program with a primary focus on providing interpreters trained in ProTactile communication for individuals, who are DeafBlind did see their funding come to an end in September. The loss of these programs is painful and will impact teachers and students for years to come. Seeing funding for these programs discontinued serves as a reminder to me of the important role that organizations like DVIDB play in providing resources for both instruction and advocacy in our profession.

In the last issue of *VIDBE-Q* we learned about a program in Tennessee that is providing online resources and coursework that VI professionals can use to support students in rural areas who are blind and visually impaired transition to

employment and secondary education. We also read about a program in Alabama where students are learning agricultural skills, an area of instruction often overlooked for students who are blind visually impaired and DeafBlind. In this issue, we will feature articles on adapted sports and recreation programs for students who are blind, visually impaired, and DeafBlind which is another area of instruction that can sometimes go underemphasized in our profession. Over the years, access to these types of articles and the resources that I have found through DVIDB has helped me grow in my knowledge as an educator and my confidence as an advocate for my students and their families.

In my first message as president, I suggested that "though we may be a small voice in the world of special education, we are mighty in the message that we share." As I pass the mantle of president to Dr. Beth Jones, I hope that this issue of *VIDBE-Q* inspires you to continue the work of DVIDB in growing the might of our voice and our message in the years to come.

“Dark-colored balls are more visible to me”: Experiences of Physical Education among students with visual impairment in Switzerland

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Abstract

In Switzerland, a national law was adopted to promote inclusion, while recognizing special schools as an alternative (*The Disability Act*; in French *Loi sur l’égalité pour les handicapés* [LHand, 2002]). However, the implementation of this law is delegated to regional authorities, which have considerable discretion and autonomy in its application across different areas of schooling. To date, the experiences of

students with VI in PE in Switzerland remain unexplored. The present study aims to address this gap by examining the experiences of students with VI in Switzerland in both PE and recreational activity. This study adopts a qualitative descriptive design. Participants were recruited during a summer camp specialized for youth with VI. Data were collected with semi-structured interviews with students with six students with VI via video-conferencing (mean age: 10.6 years old). The interviews were transcribed and analyzed using the reflexive thematic analysis method. Findings revealed five interrelated themes to depict the experiences namely, 1) Physical and unequal participation in PE; 2) Adaptations of equipment; 3) Obstacles; 4) Inconsistent presence of support and 5) Facilitators.

Analysis of the experiences suggests that inclusion in PE is implemented partially in this context. This may result from a flexible legal framework and the broad autonomy granted to schools under the LHAND Act. The findings underscore the need for clearer guidance and consistency in applying the law across all subjects to prevent certain domains from being overlooked or underprioritized.

Key words: *inclusion*, *physical education*, *special education*, *visual impairment*

The United Nation (UN) convention established a universal framework emphasizing the right and the accessibility of education for all learners (UN, 2006; UNESCO, 2015). In parallel, many countries have implemented national legislation and inclusive policies to ensure that students with disabilities have the right to a free and appropriate education in the least restrictive environment, explicitly including physical education (PE) and adapted programs (i.e, Individuals with Disabilities Education Act. 2004 in United States). However, while legal frameworks have promoted inclusion, they have also left considerable room for interpretation regarding the implementation of integrating (placement) and inclusion (philosophy) (Haegele, 2019) and in school systems. However, many authors have distinguished between the two concepts in order to clarify their theoretical foundations and practical application (Block, 1999; Haegele, 2019; Obruniskova & Block, 2020).

Integration refers to a physical "placement in which students receive their education, regardless of learning style or unique educational needs, students are educated in the same setting" (Haegele, 2019). Integration emphasizes the role of special education within the general education system and the right of all children to receive educational support in the same setting (Obruniskova & Block, 2020; Qi & Ha, 2012). *Inclusion* goes beyond physical placement and refers to an educational philosophy that "promotes a sense of belonging, acceptance, and value

within a group" (Haegele, 2019; Spencer-Cavaliere & Watkinson, 2010). Inclusion requires educators to deliver content in ways that foster diverse learning, ensuring that students with varied educational needs can succeed while receiving appropriate support (Block, 1999; Block & Obrusnikova, 2007). However, a "shift" between the two concepts may occur creating and evident tension between rhetoric and practice (Heagele, 2019; Obruniskova & Block, 2020; Qi & Ha, 2012). Indeed, unclear policy formulation and the use of imprecise terminology may result in misunderstandings regarding the practical implementation of inclusion and permit a broad range of interpretations (Pečnikar Oblak et al., 2023).

Although several years have elapsed since the enactment of relevant laws and policies, the topic of inclusion in PE remains highly pertinent. The discussion regarding its potential benefits and the challenges associated with its implementation continues to attract considerable scientific attention and inclusion has been examined and synthesized from multiple perspectives (i.e., attitudes, barriers), reflecting its complexity and ongoing relevance within the field. Inclusion has been associated with benefits such as increased social participation; however, studies also reported potential adverse outcomes, including marginalization, isolation, discrimination, bullying, perceived incompetence, and limited peer relationships (Coates & Vickerman, 2008; Miyauchi et al., 2020; Obruniskova & Block, 2020). Several challenges and barriers have been identified,

including a lack of resources (e.g., teacher assistants) and insufficient training (e.g., on disability types, inclusive planning and support, accessibility, pedagogical strategies, and practical examples of activities for use in inclusive classrooms) (Haegele et al., 2018; Lisenbliger et a., 2018; Miyauchi et al., 2020; Pocock & Miyahara, 2018; Rekaa et al., 2019; Tant & Watelain, 2016, Tarantino et al., 2022; Wilhelmsen & Sørensen, 2017).

Over the years, a certain consensus seems to have emerged that inclusion in PE is a multifactorial and complex process rather than a fixed concept (Haegele et al., 2021; Karamani et al., 2024). Similarly, a distinction exists between integration, which refers to physical placement, and inclusion, which encompasses both philosophy and process (Haegele, 2019). Another lesson learned is that formalizing policies is not enough to ensure that they are properly implemented in practice in PE classes (Heagele et al., 2021). Although policies are intended to support individuals with disabilities, they are rarely developed in direct collaboration with these groups, and the perspectives of the individuals with disabilities often remain underrepresented in the policy-making process (Wilhensen et al., 2019). Over the past decade, there has been a substantial increase in scholarly attention directed toward first-hand narratives of individuals with visual impairments (VI), particularly in relation to their experiences within inclusive PE contexts (Alves et al., 2018; Giese et al., 2021; Giese & Grenier.,

2025; Haegele et al., 2017, Haegele & Buckley, 2019). These perspectives provide critical insights into how inclusion is experienced from within by those directly affected, offering an essential dimension for understanding the effectiveness and authenticity of inclusive practices (Giese et al., 2021). Recent qualitative studies have identified several recurring themes, including restricted or partial participation (e.g., being directed toward alternative activities rather than those of peers), insufficient or inappropriate adaptations leading to exclusion from classes, fears and ambivalent experiences characterized by mixed peer relationships (Alves et al., 2018; Ball et al., 2022; Giese et al., 2021; Haegele et al., 2017; Haegele et al., 2022; Hagele & Buckley 2019; Ruin et al., 2021). Other studies that retrospectively investigated the experiences of adults with VI have similarly identified recurring themes, including positive but challenging experiences (i.e., bullying, isolation) (Haegele & Kirk, 2018; Haegele et al., 2018; Haegele, Hodge, et al., 2019; Haegele & Zhu, 2017).

Switzerland and Inclusion in Physical Education

Since 2014, Switzerland has committed to the UN Convention on the Rights of Persons with Disabilities, promoting inclusion and preventing discrimination. The Disability Federal Act on the Elimination of Inequality of Persons with Disabilities (LHAND) requires regional authorities (called cantons) to provide adapted education for children with disabilities and encourages integration into

mainstream schools. LHAND covers all the schooling mandating assessment of student needs and Individualized Education Plans (IEPs) to allocate support and ensure accessibility. However, inclusive PE receives limited guidance under the curriculum (Plan d'Études Romand [PER]), which recommend three periods of 45 minutes/week and objectives but does **n**ot mandate assessments, IEPs, or accommodations. Administrators therefore have broad discretion in resource allocation, and support is often provided by teachers or educators without training in adapted PE. Consequently, PE is frequently underprioritized, emphasizing the need to examine how these factors shape students' experiences. Few Swiss studies have addressed the topic of inclusion in PE within this framework, with existing research focusing primarily on the perspectives of PE teachers, who have generally expressed supportive attitudes while also highlighting the need for additional training for students with VI (Lauper et al., 2023). Also, Zufferey et al. (2025) further highlighted this gap, finding that teachers ranked PE seventh out of twelve domains in terms of needs for curriculum adaptation, while mathematics, geography, languages, and science were prioritized. This context highlights the challenges of implementing inclusive PE in Switzerland, despite strong legal and policy commitments. The combination of limited guidance, discretionary resource allocation, and the lack of formally trained adapted PE professionals can result in inconsistent support for students with disabilities. Understanding how these factors

influence students' experiences is therefore essential to inform more effective practices and policies in inclusive PE.

Research documenting the voices of individuals with VI has likewise highlighted barriers and negative experiences. The majority of these studies have been conducted in the United States, with some in Germany, but very few in Switzerland. The present study therefore aims to address this gap by examining the experiences of students with VI in Switzerland regarding their experiences in PE and in recreational physical activity (i.e., more specifically, their physical participation, the pedagogical dimensions, the adaptations they received, the activities they engage in, their strengths, and the obstacles they encounter in carrying out their activities).

Method

This study adopts a qualitative descriptive design, which aims to provide a rich and detailed account of an experience (Creswell & Poth, 2016). This design is appropriate because it allows to document the participants' experiences in their own words, producing a comprehensive and nuanced understanding of the phenomenon. Participants were recruited during a sport summer camp for youth with VI in Switzerland (after the camp, parents were contacted via email to find out if their child would like to participate in the study). To participate in this study,

youth had to have a VI, attend an inclusive or special school, and take physical education classes at school. Parents and children gave their written and verbal consent to participate in a semi-structured interview on a videoconferencing platform after receiving an explanation of the study. Participants received no compensation for participating in the interview and were clearly informed that they could withdraw from the study at any time without affecting their involvement in physical activity (school, recreational, or summer camp). Interviews were conducted by two same researchers to ensure the consistency (JB, VC) that were guided by the same interview guide (length between 30 and 45 minutes). Parents were not present during interviews. Six participants accepted to participate in this study, three of them attended inclusive school and three special school. They were aged between 8 and 14 (mean age: 10.6 years old). VI were categorized with USABA classification (B1, B2, B3), based on information available in their medical folders. Classification were B1 No light perception in either eye up to light perception, and an inability to recognize the shape of a hand at any distance or in any direction); B2: From ability to recognize the shape of a hand up to visual acuity of 20/600 and/or a visual field of less than 5 degrees in the best eye with the best practical eye correction; B3: From visual acuity above 20/600 and up to visual acuity of 20/200 and/or a visual field of less than 20 degrees and more than 5

degrees in the best eye with the best practical eye correction. Table 1 presents the characteristics of the participants.

Table 1

Participants

Participant	Gender	Age	School setting	Category of VI	Type of VI
1	Girl	10	Inclusion	B2	Low vision/congenial
2	Girl	12	Inclusion	B2	Low vision/acquired (albinism)
3	Girl	8	Inclusion	B2	Low vision/congenital (albinism)
4	Boy	11	Special	B3	Low vision/congenital
5	Girl	9	Special	B2	Low vision/congenital
6	Boy	14	Special	B3	Low vision/acquired

Data collection and analysis

This study employed a qualitative approach, aimed at exploring participants' experiences and perceptions (Goodwin, 2020). The narrative inquiry method used is considered as relevant to explore specific experiences and to seek a detailed understanding of a specific phenomenon in a natural setting (Leko et al., 2021). To collect data, participants took part in an interview lasting approximately 30 to 45 minutes using a semi-structured interview with open-end questions, framework that

allowed specific questions to be asked without confining the discussion to an overly strict framework. Table 2 present the interview guide.

Table 2

Interview guide

Do you participate in PE class? How many hours do you have every week? Is it the same participation than your classmate?
Do you think your VI affect your participation in PE class?
Do you have the same participation than your classmate in PE class?
What is your favorite and least favorite activity?
Do you have any adaptations in PE class in relation to your VI?
Do you have any suggestion that could help you in PE or in sports?
Do you participate in physical activity outside of the school/recreational sport/sport club?
How do you choose this activity?
Do you have any difficult in this sport outside of the school? Which one?

The corpus was analyzed with different 6 phases of reflexive thematic analysis suggested by Braun & Clark (2019; 2021), namely, 1) data familiarization and writing familiarization notes; 2) systematic data coding; 3) generating initial themes from coded and collated data; 4) developing and reviewing themes; 5) refining,

defining and naming themes; and 6) writing the report. Coding process and elaboration of “thematic three” were done with NVivo software).

Trustworthiness

Several strategies were used to ensure trustworthiness (Leko et al., 2021). The interview guide was submitted to an external professor in special education with extensive experience in qualitative research, whose feedback helped verify the clarity of questions, adjust them, and validate the questionnaire. Regarding positionality, the researchers are both women, White, and affiliated with the Department of Special Education at the University of Fribourg (Switzerland), as a university lecturer (PhD in Special Education) and a master’s student. Although they are not directly involved in inclusive physical education or in the special schools attended by the participants, they possess substantial familiarity with the Swiss special education context, which may shape interpretations while also grounding the study in both academic and practical perspectives. Their prior contact with participants through summer camp could influence analysis; however, credibility was supported through triangulation using reflective notes collected during interviews and multiple rounds of coding and validation of themes by two authors. Finally, a critical friend was involved to challenge assumptions and provide reflexive

critique, ensuring that the findings accurately reflected participants' experiences and were interpreted with reflexivity.

Findings

Based on analysis, five interrelated themes were constructed to depict the experiences of students with VI in PE and in recreational physical activity, namely, 1) Physical and unequal participation in PE; 2) Adaptations of equipment; 3) Obstacles; 4) Inconsistent presence of support and 5) Facilitators.

Physical and unequal participation: "I participate like the others"

The experience of participation in PE classes reported by students with VI differed depending on whether they attended inclusive or special schools. Inclusive settings appear to follow the guidelines of the regular PE curriculum, receiving three periods per week participating at the same level as their peers. "I participate like the others, I have three periods of 45-minutes every week" (P1). Conversely, students in special schools reported fewer instructional hours, with only one PE class per week. This difference suggests an unequal provision of PE opportunities between the two educational settings. "I have one hour of PE per week. Yes, I can do everything, try a bit of everything. I don't use a special ball; I can play with regular balls, it doesn't make any difference" (P6).

Outside of the school, all the students reported they participated in at least one recreational physical activity. "I practice judo in a club outside of school and my little sister also practices judo, but as an extracurricular activity" (P3). Although students may participate in certain sports, no adaptations were reported. "There are no adaptations in any of the sports. I have participated in outside of school, whether football or capoeira. I practice capoeira, but I don't actually like it, because it gives me a headache from the sun " (P4). Consequently, they could face difficulties like exclusion. "I was enrolled in football outside of school. I had started off well, but I slowed down the group because I couldn't run like everyone else, so it just couldn't work out" (P4).

Adaptation of equipment: "but changing the color wouldn't make a difference"

According to students' reports, the adaptation of equipment is one of the strategies suggested by teachers; however, these adaptations do not appear to be consistently implemented during lessons. *"There are balls that are better suited for me, the ones in different colors. Dark-colored balls are more visible to me, but sometimes, if purple balls are not available, the teacher gives me a yellow one, which I cannot see well*" (P2). The analysis of students' experiences seems to reveal that some adaptations are not always adequate or aligned with their VI " but

changing the color wouldn't make a difference, because even if I see better with a certain color, if I see it double, I wouldn't know which one to choose" (P1).

Obstacles: "It becomes more complicated for me when there is distance involved"

Through their experiences, students with VI reported different obstacles in the PE classroom, notably, the environmental obstacles in inclusive setting "There are some things that are a little more difficult for me than for others, especially when it comes to spatial awareness. I have trouble judging distances, whether something is far or near. So, it becomes more complicated for me when there is distance involved" (P1). Across both inclusive and special school settings, ball games were perceived as barriers to participation in physical education. Participants reported varying enjoyment and perceived competence in ball-related sports. Some found these activities less appealing due to the challenges they posed. For example, one student noted, "I don't like soccer as much" (P1), while another commented, "Ball games are more difficult for me" (P3). Another participant added, "I don't like basketball as much" (P5).

Unequal presence of support: "No, my special education teacher does not come to PE classes"

Despite following the same curriculum and operating under the same legal framework, the two school contexts (inclusive vs special school) seems to provide

different forms of support. In inclusive settings, students reported that no additional personnel were present to support them in PE. “No, my special education teacher does not come to PE classes” (P4). In contrast, in special school, students could receive support from an additional person, which allowed them to increase their participation in PE classes. *“I have someone who helps me perform the different exercises, showing me, for example, how to jump, because I can’t see the floor very well, all that* " (P5). In inclusive context, support is not provided in PE and in special schools, students could receive any support by a special educator, but any adapted physical educators is mentioned, as this profession don’t exist in Switzerland.

Facilitators

Conversely, students identified several facilitators that could enhance their participation in PE. Access to adapted equipment was highlighted as one key factor, with one student noting, *“Yes, the balls that make noise (with a bell inside) might help me” (P*4). Modifications to the physical environment were also perceived as supportive, as another participant explained, *“Reducing the number of obstacles would greatly help me and make the task much easier to complete”* (P2). These insights suggest that both tailored equipment and environmental adjustments can play an important role in promoting engagement in physical education for

students with visual impairments, highlighting the interplay between barriers and facilitators in shaping participation.

The analysis of students' experiences revealed their physical presence in physical education classes, although this varied across contexts. Despite the availability of some adapted equipment (like different color of balls), participants' accounts suggest that adaptations are not always adequate or personalized to individual needs. Additionally, the inconsistent presence of support staff highlights schools' decisions not to provide additional and systematic support in PE. Consequently, students' participation may be constrained both by insufficiently adapted equipment or environments and by a lack of support.

Discussion

The analysis of the youths' experiences was framed around the pillars of the LHAND law and the most salient themes emerging from the interviews. These included physical participation, which varied in duration depending on whether the context was inclusive or a special school; the presence of certain adaptations, which appeared partial and were not consistently tailored to individual needs; environmental barriers in the classroom; and the partial provision of support to students during physical education lessons in specialized settings, which was generally absent in inclusive contexts. Based on the experiences of six students with VI a window of understanding of the broader context is illuminated. This

analysis makes it possible to draw certain conclusions and establish connections with policies and scientific literature from different countries. The discussion is framed around the four key themes highlighted in the results, namely, 1) Physical participation 2) Adaptation of equipment; 3) Obstacles; 4) Unequal presence of support and 5) Facilitators.

Physical Participation

Firstly, the physical participation in PE seems to be respected, in inclusive and special school, in accordance with the LHAND. Nevertheless, the number of hours seems to be different in both contexts. Students enrolled in inclusive schools participate in PE classes as prescribed by the regular curriculum (3 periods of 45 minutes/week), whereas those in special schools appear to have access to a reduced number of such classes (60 minutes /week. Thus, it can be observed that the provision of PE differs, even though the curriculum and the guidelines are the same. This finding is positive, unlike other contexts that have reported the exclusion of students from classes and participation in different activities during PE classes (Alves et al., 2018; Haegele et al., 2022). While the observed physical participation of students in PE is an encouraging finding, physical presence alone does not guarantee meaningful inclusion and, in the absence of appropriate pedagogical practices, may even result in a form of “dumping ground” (Haegele, 2019). In other word, experience depicted by the students revealed that students are

physically present but few adaptations and supported are proposed to support their participation in PE. The analysis of these experiences indicates that inclusion in PE appears to address the organizational (policies, curriculums) and physical levels (physical participation) (Wilhelmsen, 2019).

Adaptation of equipment

Some students reported few adaptations of the equipment like the color of the material but mentioned that adaptation of the material is not systematic. Although this example is generally positive and corresponds to the third dimension of inclusion (*pedagogical*, which concerns the way the physical education teacher differentiates their teaching by taking into account the diversity of students' abilities, resources) (Wilhensen, 2019), the adaptations mentioned seem rather limited, random, and insufficiently personalized, as they vary from one day to the next. The adaptations proposed for students constitute a relevant recommendation (e.g., using equipment with variations in color, brightness, or contrast); however, a more individualized analysis should be undertaken to evaluate the need for further adjustments, such as increasing or decreasing the size of the ball or equipment, employing sound-emitting devices, or providing supports such as balls attached to strings (Lieberman et al., 2019). To complement these adaptations, several recommendations have been proposed, including instructional strategies such as pre-teaching, which may involve the use of tactile maps, orientation and mobility

practice, as well as explicit instruction and practice of foundational concepts and skills, verbal directions, visual demonstrations and physical guidance (Lieberman et al., 2019).

Obstacles

The analysis of experiences in PE revealed that students with VI could face environmental obstacles within the inclusive setting (i.e, spatial awareness, judging distances and lack of equipment). These challenges are recognized as frequent barriers to access to physical activity (Haegele et al., 2021; Linsenbigler et al., 2018). Nevertheless, they can be addressed through targeted instructional strategies (e.g., orientation and mobility training) and straightforward environmental modifications, such as modification of lighting (increase or decrease); tactile demarcation (i.e. use of carpet or mats with different surface); visual demarcation (i.e., tape with different colors on the floor or on the wall); auditory cues or use of a tactile board to explain the environment, the area of an activity or space (Lieberman et al., 2019; Lieberman et al., 2025).

Unequal presence of Support

The experiences of students suggested that support varies across contexts, often resulting in the absence of support personnel in inclusive settings. Despite the existence of Swiss legislation promoting inclusion in all compulsory area (LHAND), resources do not appear to be allocated in PE or for any paraeducator to

assist the students with VI in inclusive setting. Indeed, the absence of an obligation to allocate resources in PE, combined with the discretion granted to teachers in this regard, appears to tilt the balance toward a lack of resources for this subject. However, the presence of teacher assistant and/or paraeducators is considered as a facilitator to support the participation of student with disabilities in PE (Alves et al., 2017; Lieberman, 2024). The role of paraeducators in PE, also known as a paraprofessional, teaching assistant, educational assistant, or teacher's aide — is defined as a "support personnel who assists teachers in different phases of the instructional process, which includes the delivery of direct services" (Fuller & Lieberman, 2024; Lieberman et al., 2024). The roles of paraeducators are to assist students' movement as needed, keeping students on-task to listen to instructions, repeating instructions if needed, prompting students for safe transitions, assisting teachers with assessment procedures, and participating in activities with students (Davis et al., 2007; Fuller & Lieberman, 2024; Lee & Haegele, 2016). Consequently, the lack of support can have a significant impact on students' participation in classes. Furthermore, the experiences examined do not indicate the presence of formal assessment or individualized education plans (IEPs) in physical education, which are nevertheless cornerstones of accommodation planning and inclusion (Lieberman, 2024; Liu & Caperton, 2025). Finally, the study did not allow for questioning students about peer relationships in the context of inclusion,

which constitutes the fourth dimension of inclusion (Wilhensen, 2019), also described in terms of acceptance and belonging (Haegele, 2019). However, the experiences reported by the students did not reveal any episodes of exclusion or discrimination, as has been reported in other studies (Alves et al., 2018; Ball et al., 2022; Giese & Grenier, 2025).

Overall, regarding the experiences analyzed, the situation in Switzerland appears to reflect integration rather than inclusion (Haegele, 2019)**.** While students participated physically, few pedagogical practices supported their inclusion in PE, either IEP or supports. This may be due to a broad inclusive policy that lacks clear guidance on resource allocation and implementation across domains. The Swiss curriculum offers general guidelines but does not provide adaptations for all educational needs, leaving teachers considerable discretion, which may have shifted practice toward integration despite the inclusive policy (Obruniskova & Block, 2020; Pečnikar Oblak et al., 2023).

Conclusion

The analysis of experiences suggests that the pillars of LHAND appear to be partially implemented in physical education in the context of this study, notably the provision of Individualized Education Plans (IEPs) **a**nd the allocation of additional resources. This may result from a flexible legal framework and the broad autonomy granted to schools under the LHAND Act. The findings underscore the

need for clearer guidance and consistency in applying the law across all sectors, including PE, to prevent certain domains from being overlooked or underprioritized**.** Based on the findings, several practical implications can be drawn. Clearer guidelines for supporting students with disabilities in PE, including those with VI, appear necessary, as the current curriculum is too broad to offer specific and actionable adaptation strategies. Revising and clarifying the curriculum could better guide inclusive practices while preserving flexibility for teachers and school stakeholders, without diminishing their responsibilities toward students with disabilities. Finally, precise specification of legal obligations and their implementation in each domain could help ensure systematic compliance and prevent the neglect or omission of certain areas or certain types of disabilities.

By examining six students in inclusive and special school settings, this study provides insights into how inclusive policies are experienced in practice, though the findings are not representative of all students with VI participating in PE. As a main limitation, this study involved six students, and its findings cannot be generalized to the broader context of physical education in Switzerland. Including additional participants might have produced different results, and the analysis could have varied if conducted by researchers with different backgrounds or interpretive perspectives. Future research should continue to document inclusive practices in PE from both special education and physical education teachers'

perspectives, to explore how their roles can be better aligned. In addition, the voices of pre-service professionals and of students affected by these policies should be examined in depth to help bridge the gap between policy, teacher education, and classroom practice.

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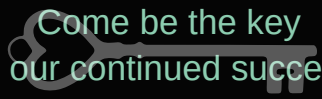

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The Importance of Active Lifestyles for Young Adults With Vision Impairments: Implementation at the Bridges School

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Abstract

Developing and maintaining an active lifestyle is essential for young adults with vision impairments, directly impacting both immediate health and lifelong well-being. This article describes the comprehensive approach at the Bridges School at the Utah School for the Blind, where physical fitness, recreation, and leisure are intentionally embedded throughout both academic and residential life programs. Central to the Bridges model is the integration of the Expanded Core Curriculum (ECC) using a collapsed framework that organizes ECC into access skills, independent living skills, and community readiness skills. Through a Personalized,

Competency-Based Learning (PCBL) approach, students are treated as equitable partners in the learning process, with regular opportunities for self-reflection, advocacy, and personalized goal setting. Staff roles are clearly defined, supporting students to understand their responsibilities and transfer skills across contexts. Instructional strategies include the use of competency and self-rating scales, diverse activity offerings, and structured reflection to foster self-awareness and informed choice-making. All learning experiences are accessible, inclusive, and explicitly connected to real-world skills such as time management, collaboration, and self-advocacy. The article provides detailed examples, competency rubric examples, and alignment tables to support replication of this model in other educational settings. The Bridges approach ensures that students are equipped with the habits, skills, and confidence necessary for lifelong health, independence, and meaningful participation in their communities.

Keywords: *Expanded Core Curriculum (ECC), physical education, recreation and leisure, vision impairment, self-determination, competency-based learning, residential life, lifelong fitness, student partnership*

Developing and maintaining an active lifestyle is crucial for young adults with vision impairments because it addresses both immediate health and lifelong well-being. Research consistently shows that individuals with visual impairments are at greater risk for physical inactivity and its associated health problems, such as obesity, cardiovascular disease, and reduced muscular strength (Haegele & Porretta, 2015; Holbrook et al., 2009). Physical activity, however, not only supports physical health but also improves self-esteem, independence, and social integration among youth with vision loss (Lieberman et al., 2010; West et al., 2015). Studies have shown that when young people with vision impairments are equipped with the skills, confidence, and motivation to be active, they are better able to participate fully in community life and experience greater life satisfaction (Shapiro & Martin, 2010).

At the Bridges School, a secondary school within the Utah Schools for the Deaf and the Blind, students with blindness, low vision, or deafblindness are empowered to build active lifestyles that foster thriving futures. The school's mission is to provide rigorous and effective 21st-century learning experiences, ensuring every student graduates ready to thrive in the dynamic world beyond secondary school. This mission is realized through a Personalized, Competency-Based Learning (PCBL) approach, as outlined by the Utah State Board of

Education, which emphasizes student agency, demonstrated competency, customized support, and social-emotional learning.

The Bridges Pathway Model offers flexible and student-centered pathways across critical areas, integrating the Expanded Core Curriculum (ECC) not as a checklist of isolated skills but as a framework for deeper learning. ECC at Bridges focuses on filling gaps in knowledge, skills, and behaviors that students with vision impairments may miss due to a lack of incidental learning. The goal is not only skill acquisition but also the development of sustainable, transferable understandings that support independence and community participation. The ECC is not a menu of isolated skills or a checklist of fun activities. Its true purpose is to fill gaps in knowledge, skills, and behaviors that students with visual impairments miss because of a lack of incidental learning. These gaps, left unaddressed, can limit students' access to academics, independence, and participation in their communities. To help students with vision loss live fulfilling lives, educators must intentionally embed ECC throughout academic instruction—moving beyond fragmented, activity-oriented approaches (Knight, 2013; McTighe & Wiggins, 2005). ECC is about designing learning experiences that build sustainable, transferable understandings, not just providing moments of engagement.

The Bridges school approaches their ECC instruction using the collapsed ECC framework articulated by Dr. Karen Wolffe and updated by Robbin Clark. Traditionally the ECC has been viewed by its nine domains separately. The collapsed ECC framework organizes the nine areas into 3 interdisciplinary domains: access skills (compensatory, sensory efficiency and use of assistive technology), community readiness (career education, self-determination and orientation and mobility) and independent living skills (independent living skills, recreation and leisure and social interaction skills). The collapsed framework organizes ECC domains in a cohesive way, ensuring they complement each other to fulfill the overall purpose of supporting comprehensive skill development for students with vision impairments.

Physical fitness, recreation, and leisure are woven throughout both the daily academic schedule and the residential life program at Bridges. These areas are prioritized as essential components of each student's education because of their profound impact on quality of life. Recognizing that a once-a-week traditional class is insufficient to establish a strong foundation for wellness in today's world, Bridges ensures that students participate in a combination of traditional physical education courses such as fitness for life and body conditioning, along with extracurricular and lifetime activities like judo, horseback riding, and alpine and cross-country skiing. Each extracurricular opportunity is intentionally designed as

a lifetime skill-builder, rather than a temporary high school experience. Recreation and leisure are established as credited courses and are also seamlessly integrated into informal residential life experiences, with ECC instruction embedded across all settings.

A key approach at Bridges School is the consistent invitation for students to serve as equitable partners in the learning process. The faculty implements a deeper learning approach to the ECC, which goes beyond memorization to emphasize critical thinking, problem solving, collaboration, and real-world application. This method prioritizes the development of transferable skills, creativity, and lifelong learning habits, and places strong emphasis on learning how to learn, not just what to learn. Student voice, self-direction, and meaningful engagement are encouraged at every step.

Roles for faculty and staff are explicitly communicated to students, enabling them to understand and fulfill their own responsibilities within the learning community. Students are regularly coached to ask themselves, “What’s my role in this?” and “What do I need to meet my personal vision needs and learning profile?” While the physical education teacher may plan the lesson, students are expected to actively connect the skills learned to various situations and to integrate

knowledge and strategies from previous experiences. This collaborative, reflective approach is designed to foster lifelong skill building.

A central outcome sought by Bridges faculty is the creation of sustainable, transferable outcomes, ensuring that students can continue their learning far beyond the classroom. This is particularly crucial in physical fitness and recreation, where students will not always have their adapted physical education (APE) teacher present in adulthood. Cultivating self-awareness and self-advocacy enables students to identify the accommodations they need and ensure these supports are implemented across diverse activities and environments. Research shows that explicit instruction in self-determination and self-advocacy is essential for students with visual impairments to successfully access supports and achieve greater independence (Sapp & Hatlen, 2010). Cultivating self-awareness and self-advocacy enables students to identify the accommodations they need and ensure these supports are implemented across diverse activities and environments. Developing these abilities fosters greater independence and prepares students for active participation within their communities. Focusing on self-awareness and self-advocacy aligns with the Expanded Core Curriculum's emphasis on self-determination, problem-solving, and self-advocacy as foundational components for thriving in school and beyond.

The lifetime fitness class is an example of Bridges' approach. Designed in alignment with Utah PE standards and co-developed by the APE and the principal who is the ECC instructional coach, this course centers on developing an active lifestyle. Students are given the opportunity to experiment with various ways to move their bodies, from familiar activities like walking and dance to novel pursuits such as fitness games and adaptive sports. The intention is for each student to discover what works for them, building the confidence and skills needed to remain active now and as they grow more independent. There are five core outcomes of this class to help students develop an active lifestyle for young adulthood. These core outcomes are aligned with ECC areas and their accompanying components (see Table 1).

Table 1

Alignment of Student Outcomes with ECC Areas and Components

Alignment of Student Outcomes with ECC Areas and Components		
Outcome	**Aligned ECC Area(s)**	**Relevant ECC Components**
1. I have the stamina to confidently manage daily routines and a commuter lifestyle.	Independent Living Skills Orientation & Mobility Sensory Efficiency	Time management, organization, body concepts, environmental concepts, spatial concepts, mobility skills, visual/auditory/tactile function

Alignment of Student Outcomes with ECC Areas and Components		
2. I have the fitness and endurance to complete everyday tasks and responsibilities without quickly getting tired.	Independent Living Skills Recreation & Leisure Sensory Efficiency	Health, fitness & sports, physical activity, organization, personal hygiene, body concepts, visual/auditory/tactile function
3. I can actively participate in a variety of movement and fitness activities, making choices that keep me engaged and healthy.	Recreation & Leisure Self-Determination Social Interaction Skills	Physical activity, health, fitness & sports, play, team & spectator sports, self-knowledge, capacity to make informed choices, cooperative skills
4. I understand my vision needs and accommodations, and I know how to advocate for the support I need to stay active and involved.	Self-Determination Use of Assistive Technology Social Interaction Skills	Self-advocacy & empowerment, assertiveness skills, awareness of personal rights, communication, access to information
5. I can design, carry out, and adjust a personal plan for lifelong physical activity as a young adult.	Self-Determination Independent Living Skills Career Education Recreation & Leisure	Problem solving & goal setting, self-regulated & self-directed behavior, organization, career exploration, leisure activities & hobbies

A key instructional strategy is the partnership principle, where teachers and students work together using both a competency scale and a self-rating scale. The competency scale outlines observable benchmarks for developing stamina, exploring movement options, advocating for personal needs, and creating personalized fitness plans. For instance, when working on stamina for daily life and commuting, students' progress from "Emerging" (often needing breaks and

learning ways to manage energy) to “Excelling” (completing routines with steady energy and using strategies such as hydration and pacing).

Students’ progress in building stamina for daily life and commuting can be effectively tracked using a clearly defined competency scale. The Competency Scale for Building Stamina in Daily Life and Commuting table presents specific criteria for each proficiency level, providing both educators and students with observable benchmarks for growth (see Table 2).

Table 2

Competency Scale Example: Building Stamina for Daily Life & Coaching

Competency Scale Example: Building Stamina for Daily Life & Commuting	
Level	**Description**
4 – Excelling	Consistently completes daily routines and commutes with steady energy, rarely needing to pause; tracks stamina and uses strategies (hydration, pacing, rest).
3 – Proficient	Completes routines at a steady pace, taking short breaks as needed; can describe at least two ways to manage energy.
2 – Progressing	Can complete some routines and commutes but often needs several breaks or reminders to slow down and take care of energy.
1 – Emerging	Often feels tired or needs frequent breaks to finish daily routines and commutes; still learning ways to manage stamina.

The self-rating scale is a student-driven tool for honest self-reflection in each area. Students assess their own strengths and interests, identify what they want to work on next, and set goals in partnership with their teachers. This approach ensures that students are not just passive recipients but are active participants in their own learning and health journeys.

Foundational skills are introduced at the start of the class to ensure all students have proper body positioning and movement. Circuit work helps refine these skills, and as the class progresses, students expand their activity repertoire to include both the familiar and the unfamiliar. The overarching message is that being active is not just about sports or gym class; it is about having more energy, feeling good about oneself, and being prepared for life's challenges. Research supports that people who maintain an active lifestyle experience better health, increased confidence, and greater happiness in daily life (Lieberman et al., 2010; Shapiro & Martin, 2010).

In addition to formal physical education, recreation and leisure is a specifically targeted area within the Bridges School curriculum. This course is integrated into the academic day and is also a component of the residential life program. During the school day, students participating in the recreation and leisure class are introduced to a variety of units that encourage them to explore and engage

in a wide range of recreational pursuits. The teacher frequently invites guest speakers to introduce diverse activities; for example, a magician was invited to teach students how to perform a card trick. The selection of recreational activities is intentionally broad and not restricted by type.

Throughout the course, students self-evaluate their interests using guided exit tickets that prompt them to reflect beyond a simple "did I like this—yes or no" response. Instead, they are encouraged to consider the specific qualities and characteristics they prefer or dislike in each activity, supporting them in identifying patterns in their preferences. For instance, during the board games module, students experience both strategy-focused games like Ticket to Ride—a game in which players collect train cards and strategically claim railway routes across a country map, requiring long-term planning, route optimization, and decision-making under competition—and social, party games like Taboo, where players work in teams to guess a target word based on clues, but the clue-giver must avoid using a list of "taboo" words, making the game energetic, fast-paced, and reliant on creative communication and teamwork. If a student does not enjoy the complex strategic thinking of Ticket to Ride, a general question such as "do you like board games?" might lead them to dismiss the entire category. However, by focusing on the specific traits of each activity, students can better understand their

preferences—such as enjoying interactive, social games like Taboo, but not strategy games—resulting in a more nuanced awareness of their recreational interests.

The residential life program offers additional opportunities for students to develop recreation skills in authentic settings. The program is designed to empower students as capable, independent young adults through every experience, particularly recreation and group activities. The focus of residential life recreation activities is to expand to more than just fun and games, these activities are intentional opportunities for students to practice and strengthen real-world skills—like problem-solving, time management, collaboration, and resilience—in a supportive environment.

For example, activities like active storytelling combine recreation (improvisation, group games) with fitness, as students act out actions such as running or jumping during a story. These experiences are intentionally connected to real-world skills such as problem-solving, time management, collaboration, and resilience. Staff co-plan activities with students, assign roles, and make explicit links to work and life skills, reinforcing core ECC areas such as independence, community, resilience, and contribution.

For example, the residential life program's active storytelling activity—where students use improvisation and group games to act out physical movements during a story—offers a rich opportunity to target multiple areas of the ECC. The Alignment of Active Storytelling Activity with ECC Areas and Components table illustrates how this single activity addresses a wide range of ECC skills (see Table 3).

Table 3

Alignment of Active Storytelling Activity with ECC Areas and Components

Alignment of Active Storytelling Activity with ECC Areas and Components		
Active Storytelling Activity	**Aligned ECC Area(s)**	**Relevant ECC Components**
Active storytelling (improvisation, group games with fitness, e.g., acting out running/jumping during a story)	Recreation & Leisure	Play, Physical activity, Team & spectator sports, Leisure activities & hobbies
	Social Interaction Skills	Cooperative skills, Interactions with others, Development of relationships & friendships, Knowledge of self
	Independent Living Skills	Organization, Time management
	Self-Determination	Problem solving & goal setting skills, Self-advocacy & empowerment, Capacity to make informed choices

Alignment of Active Storytelling Activity with ECC Areas and Components		
	Career Education	Community participation, Collaboration, Contribution

The Bridges School faculty also utilizes the ECC Competency Rubric for Students in Grades 9–12+, (Clark, 2023) specifically the recreation and leisure section, to systematically address and assess students' development in key ECC skills. This rubric helps educators evaluate progress in areas such as play, physical activity, health and fitness, team and individual sports, and leisure activities and hobbies, ensuring that instruction is aligned with the ECC's comprehensive framework for independent living and community readiness skills. The Recreation & Leisure Competency Scale table provides specific examples of skills and reflective actions at each level, guiding both instruction and student self-evaluation (see Table 4).

Table 4

Recreation & Leisure Competency Scale

Recreation & Leisure			
1-Developing Competency	**2-Approaching Competency**	**3-Competency**	**4-Extending Competency**
I can identify my interests and participate in an after-school activity.	I can pursue a hobby and evaluate how fulfilling it is for my needs.	I can reflect on the components of the hobbies, talents, and the	I can develop a plan for pursuing my hobbies, talents and

		interests I have to determine how it fits in my life.	interests that fits my needs and preferences.
I can describe & explore various types of fitness (cardio, strength, HIIT, etc.).	I can identify my preferences for fitness opportunities.	I can identify fitness opportunities for all seasons, conditions with some assistance.	I can execute a plan for fitness opportunities for all seasons and conditions.
I can describe preferred leisure activities by myself and with a group.	I can plan weekly leisure activities with support and thoughtfully reflect on how well these activities meet my personal needs and interests.	I can plan weekly leisure time activities and consider the logistics (location, time, transportation, budget, assistance needed).	I will take the lead consistently to plan for my weekly leisure activities.
I can describe my preferred sports & recreation activities.	I can use the I Can Play worksheet to help determine my sports accommodations.	I can communicate my personal preferences and accommodations within recreation & sports.	I will be active in my chosen recreation & sports activities and consistently use my accommodations and preferences.

Conclusion

To effectively replicate the Bridges model in physical education and recreation/leisure instruction, it is essential for educators to intentionally embed ECC skills throughout both classroom and residential life environments at schools for the blind. Central to this model is the treatment of students as equitable partners in the learning process. This includes providing regular opportunities for self-reflection, advocacy, and personalized goal setting, empowering students to take ownership of their learning and growth. Transparent and clearly defined staff roles support students in understanding their responsibilities and in transferring skills

across diverse settings. Reflection is consistently emphasized, guiding students to analyze the qualities they enjoy or dislike in various activities, which fosters self-awareness and informed, individualized decision-making.

Moreover, the Bridges approach ensures that all instruction and activities are accessible, inclusive, and explicitly connected to real-world skills such as time management, collaboration, and self-advocacy. This comprehensive integration of ECC not only prepares students to thrive academically but also equips them for meaningful participation in their broader communities, supporting lifelong independence and well-being.

To effectively replicate the Bridges model, educators should look for intentional strategies that embed ECC skills across all physical education and recreation/leisure programming. Key practices include purposeful ECC integration, equitable student partnership, diverse activities, structured assessment, clearly defined staff and student roles, and intentional reflection. These practices are summarized in the Embedding the ECC in Physical Education and Recreation: Key Practices from the Bridges School Model table which details opportunities to embed ECC and their alignment with specific ECC areas and components (see Table 5).

Table 5

Embedding the ECC in physical Education and Recreation: Key Practices from the Bridges School Model

Embedding the ECC in Physical Education and Recreation: Key Practices from the Bridges School Model		
Look Fors	**Opportunities to Embed ECC**	**Aligned ECC Area(s) & Components**
Intentional ECC Integration: *ECC skills are purposefully taught and referenced throughout physical education, recreation, and residential life; ECC objectives are included in lesson plans and IEPs.*	Directly teach and reference ECC areas/skills in all settings; embed ECC objectives in instructional planning.	All ECC Areas: Compensatory, Sensory Efficiency, Assistive Technology, Social Interaction, Recreation & Leisure, Independent Living, Orientation & Mobility, Self-Determination, Career Education.
Equitable Student Partnership: *Students are active collaborators in learning through self-assessment, goal setting, co-planning, and reflection.*	Use ECC-aligned checklists and rubrics; involve students in planning and reflecting on activities and personal growth.	Self-Determination (Self-knowledge, Capacity to make informed choices, Self-advocacy); Social Interaction (Knowledge of self)
Diverse, Lifelong Activities: *Programs include a broad range of physical, recreational, and leisure activities with a focus on skills for lifelong engagement.*	Offer team/individual sports, creative games, and leisure activities; explicitly connect each experience to ECC outcomes.	Recreation & Leisure (Play, Physical activity, Health/fitness & sports, Team & spectator sports, Leisure activities & hobbies)

Embedding the ECC in Physical Education and Recreation: Key Practices from the Bridges School Model		
Use of ECC-Aligned Assessment Tools: *Student progress in ECC areas is tracked using structured assessment tools and shared with students and families.*	Utilize tools such as ECC Competency Rubrics & ECC High School Readiness Checklist, Texas School for the Blind: ILSA, and EVALS to monitor and support development in ECC areas.	All ECC Areas
Explicit Staff and Student Roles: *Roles and responsibilities are clearly defined and communicated for both staff and students.*	Staff plan, coach, and adapt; students are coached to understand and advocate for their roles, needs, and accommodations.	Self-Determination (Self-regulated behavior, Assertiveness), Independent Living (Organization, Time management), Social Interaction (Cooperative skills)
Intentional Reflection and Analysis: *Students reflect on their experiences and preferences in depth, moving beyond simple responses.*	Use journals, exit tickets, and group debriefs to prompt analysis of activity qualities, preferences, and ECC skill growth.	Self-Determination (Problem solving, Self-knowledge), Social Interaction (Knowledge of self)
Transfer of Skills to Real Life: *Instruction and activities are explicitly linked to real-world and community environments.*	Connect activities to time management, problem solving, self-advocacy, collaboration, and community participation.	Community Readiness Skills (Orientation & Mobility, Self-Determination, Career Education), Independent Living (Organization, Time management)

Embedding the ECC in Physical Education and Recreation: Key Practices from the Bridges School Model		
Inclusive and Accessible Practices: *Activities are universally designed and students are taught to identify and advocate for their own accommodations.*	Adapt activities and environments for accessibility; teach use of assistive technology and sensory skills; coach self-advocacy.	Sensory Efficiency (Visual, Auditory, Tactile function), Assistive Technology (Access to information, Communication), Self-Determination (Self-advocacy), Compensatory Skills

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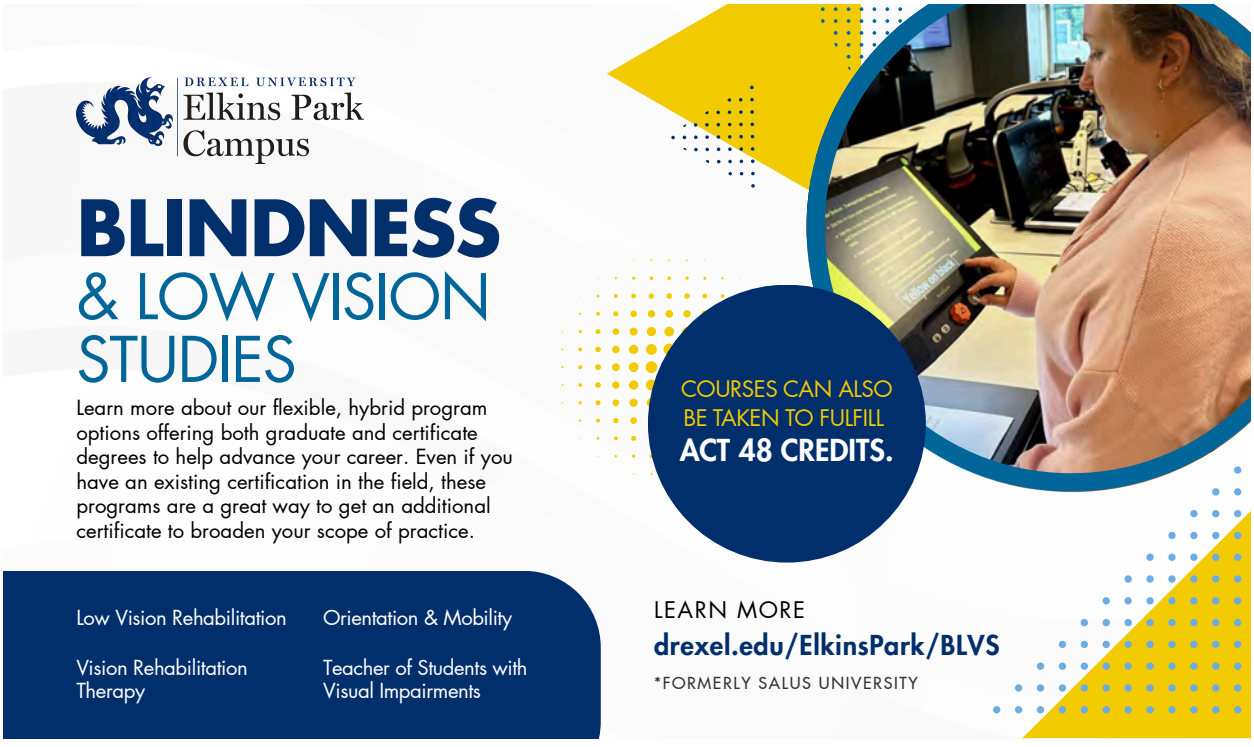
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Camp Abilities Four Corners: Cultural Respect in Action

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Abstract

Camp Abilities Four Corners is dedicated to providing culturally sustaining activities, staff and surroundings for their annual Camp, which is held on the Navajo Indian Reservation in northern Arizona. Navajo student athletes make up about 66% of participants, and 19% of the staff. This article outlines components which are embraced to highlight cultural considerations and provides suggestions for other camps who wish to include Native American beliefs and customs of their student athletes.

The Dream Behind Camp Abilities Four Corners

Figure 1

Camp Abilities Four Corners Logo

Yá'át'ééh *(Navajo greeting)*

Visualize the mile-deep gorge that is one of the seven wonders of the world, the Grand Canyon. Now picture the multi-layered and colored sandstone mesas and bluffs of the high desert, juxtaposed against the bright azure wide open skies, with a few white fluffy clouds drifting along, and scenic vistas stretching out for miles. Imagine the sparkling blue waters of the Colorado River and Lake Powell. The towering San Francisco Peaks, sacred mountain of the Navajo, watch over it all. The beauty and remoteness of this land triggered the dream of Camp Abilities Four Corners (CAFC), who would like to share with readers of this journal how we embed concepts and activities which are culturally sustaining into the week of

activities, for the benefit of other camps wishing to include more Native student athletes in their programs.

As a teacher of students with visual impairment (TSVI), Vicki Numkena, who lived and worked on the Navajo Reservation for many years, became concerned with how often her students with blindness or visual impairments were left out of sports and recreational activities at their schools, due to their impairment. Numkena started planning a new Camp Abilities, so that athletes in the Four Corners area (Arizona, New Mexico, Colorado, and Utah), could have a camp "in their backyard," while taking advantage of the outstanding recreational opportunities afforded in the region.

Navajo Board and Advisory Board members, as well as Navajos in other staff positions at Camp, have been vital to the success of CAFC. These Navajo leaders assure respectful and appropriate activities and behavior and provide role models for the Navajo student athletes. Please refer to Table 1 for ideas on ways to include Native Americans, of any tribe, in your Camp.

Camp is immersed in Native culture, as lodgings and meals are provided at the iconic Cameron Trading Post, located on the Navajo Reservation in northern Arizona. During meals, diners are surrounded by expertly woven beautiful Navajo rugs, some very large, hung on the walls. Walking through the gift shop to reach the restaurant, Native crafts, jewelry, and more are on display. Cultural

components are embedded in CAFC because of its location, and because of the student athletes and staff who are Navajo. Camp has benefitted from an average of 19% Navajo staff members, and 66% Navajo student athletes, over the past four years.

Another culturally sustaining practice is that all staff meetings, end-of-day get-togethers, and the closing ceremony, are held in the Cameron Trading Post's beautiful Rock Garden, and not in an enclosed meeting room. The Garden is set in the heart of the Trading Post, with flagstone steps leading down to a circular courtyard which includes a fireplace and picnic table. Well-cared for, manicured plants and trees surround the courtyard and provide welcome shade. This natural beauty and calmness set the tone for Camp meetings.

Figure 2

Rock Garden

Table 1

Recommendations for creating a culturally sustaining environment at your Camp

Board Members	Include Native members on your board
Staff Members	Recruit local Natives for staff members
Staff training	Include presentation on cultural considerations, Created and presented by a Native Board Member
Guidelines	Identify and reiterate culturally sustaining guidelines frequently
Native beliefs/land	Teach respect for Native beliefs and their land
Family	Include family members in your welcome and your closing ceremony
Activities	Choose activities which Native student athletes can readily access nearby, and are popular with the young people

Cultural Considerations Training

An early lesson was learned that first year by Numkena and the Board regarding culturally sustaining behavior by Camp staff. Some of the coaches and instructors had flown in from out of the area. During van rides, when campers, coaches and instructors are transported from Cameron to the activity sites for the day, several of the out-of-area staff made comments which showed they did not appreciate the beauty and majesty of the compelling landscape we were living in and travelling through. These derogatory comments were disrespectful of the Navajo student athletes and staff who were present, as this land is their home.

After this experience, Numkena asked Jamie Strong, one of the Navajo Advisory Board members, to create a presentation on Navajo culture for all staff prior to every camp. The Board also implemented a more culturally sustaining screening process for staff. Their goal is that Camp should be filled with staff who are appreciative not only of the natural beauty and sacred nature of the area of Four Corners, but who are also respectful of the generosity of the people who donated lodging and food.

The Cultural Considerations Training presentation was put together by Strong, a Navajo TSVI who also has attended Camp as a staff member. Her presentation includes Navajo history, their language, food, water, land, and family considerations. Staff members learn when athletes arrive at Camp they may be accompanied by an auntie or grandparent rather than their parents, due to the

extended family concept. The adult members of the family may speak Navajo to the student athlete. Many families on the reservation do not take vacations or have money to visit nearby local attractions. Camp is a great opportunity for student athletes to have new experiences relatively close to their own home.

Historically, the Navajo were hunters and gatherers but after placement on the reservation their diet became high in fat, sugar and salt due to the inaccessibility of traditional foods. Adoption of foods from mainstream America, including fast food and ready-made foods, has led to adverse health effects (Diné Policy Institute, 2014). Consequently, Navajo people have struggled with diabetes and obesity (Thompson et al, 2001). Currently, there are multiple programs teaching the community how to garden (Ornelas, 2017), strengthen regional food systems and reduce diet-related health disparities in the Navajo Nation (USDA, 2019). To help combat obesity and diabetes, the Navajo Nation has a tax on "junk foods" (Preventing Chronic Disease, 2020). This information is important for staff to be understanding and accepting, as some student athletes may be overweight. CAFC also makes every effort to include healthy food during Camp. The Cameron Trading Post provides all meals, with staff and athletes choosing from their varied menu, and sack lunches are also provided for everyone. During lunchtime, veggie and fruit trays are also provided and healthy snacks are available throughout the day. Each student athlete receives an Osprey hydration backpack for their use

during Camp and to take home, to assure adequate water intake is easily accomplished.

Water is life on the Navajo reservation. It is sacred and demands respect. Families are careful with every drop as many must haul water to their homes. Navajo staff and student athletes may be seen saying a prayer when crossing over water. Others will ask for protection when recreating in water. Staff are encouraged to be respectful of water and not to waste it by throwing it on pavement or dirt, but rather to walk over to a tree or bush and deposit the water there.

Finally, at the end of the cultural presentation, staff are urged to be respectful of the land and the people they meet. They are reminded they are guests of the Navajo Nation. Many of the sites we visit are sacred, and some areas of the reservation are off limits to non-natives.

Activities Selected to Reflect the Needs and Interests of the Navajo Student Athletes

The scarcity of public pools and formal swimming lessons on the reservation means many children do not learn how to swim, resulting in disproportionately high drowning rates. Up to age thirty, drowning death rates for Native populations are twice as high as for non-Natives (Clemens, 2021). Increased access to basic swimming and water safety skills training can save lives. The Center for Disease

Control (Clemens et al, 2024) recommends hiring diverse aquatic staff who look like the communities they serve, and adapting aquatic programs to meet specific community needs to decrease barriers to learning to swim. Swimming classes are included every year at Camp so student athletes can learn this important and potentially life-saving skill, assisted by Navajo coaches. Swimming lessons take place in both swimming pools and natural lakes.

Figure 3

Campers Swimming in Lake Powell

When at Lake Powell, water sports are included, such as kayaking and stand-up paddle boarding. These are sports young people can engage in with their families "out

their back door." Honoring the traditional Navajo custom of modesty, female athletes are always allowed to wear t-shirts over their swimsuits if they choose to do so.

For the Camp schedule, sports that are most popular with Navajo students are included. When sports are brought up on the reservation, basketball is the first sport mentioned, including children with visual impairment/blindness. Basketball is hugely popular, local high school players become heroes, and families drive hours to attend the games where there is never an empty seat. In Michael Powell's "Canyon Dreams" (2019), the author "shows how important sports can be to youths in struggling communities and illuminates the transcendent magic and painful realities that confront Native Americans coming of age there." He notes the town of Chinle, Arizona, on the reservation, has 4,500 residents, but its high school gym seats 7,000! The public basketball courts in Page, Arizona, are right next to the park with picnic tables for lunch, where student athletes get a chance to learn and practice their ball handling skills. A beeper is placed on a hula hoop, which is then placed over the basket, to serve as an auditory cue for the athletes.

Wrestling, another popular sport on the reservation, was added to the schedule the year after athletes expressed their interest in the wrestling/boxing equipment at the climbing gym. The Navajo proprietor agreed to provide teaching for these two sports as well.

Figure 4

Two Girls Wrestling

Golf is another up and coming sport on the reservation, thanks in part to two PGA golfers, Ricky Fowler and Notah Begay. These Navajo pros have inspired students on the reservation to embrace golf, with at least one unique Navajo golf course located in Steamboat, Arizona, embracing “rez golf.” Despite not having a golf course nearby, some high schools on the reservation still have golf teams. Lake Powell National Golf Course in Page provides the CAFC athletes and their coaches the opportunity to practice on the range and putting green, and also to get out on the course and play one hole of best ball on a par three hole. A summer storm rolled in one year, and the athletes delighted in the rain and wind as they rode in the golf carts back to the clubhouse.

CAFC hopes to sustain Navajo culture by affording children with visual

impairments/blindness to be able to explore their environment, which is closely tied to their origin stories, ceremonies and beliefs. Outings include hikes at the Grand Canyon, tours of Antelope Canyon led by Navajos, hiking and an educational presentation at Sunset Crater Volcano National Monument, and a river trip on the Colorado River, which shapes the environment of the Navajo Nation.

At the County Fairgrounds in Tuba City, two Navajo gentlemen, including one whose granddaughter is a student athlete at Camp, brought in horses from small nearby communities. Everyone at Camp had a lesson in horsemanship, as he highlighted Navajo beliefs about the spiritual nature of the horse and the relationship between horses and people. Athletes experienced an easy ride with coaches and horse handlers.

Figure 5

Athlete on a Horse

Inclusion Represents Cultural Respect

Each morning, athletes gather for a walk to the beautiful dining room for breakfast, then everyone loads into one of the 12-passenger vans for the drive to the activity site for the day. Each year, activities are planned in and around Flagstaff, Page, Tuba City, the Grand Canyon, Sunset Crater, and on Lake Powell and the Colorado River. This means everyone is in the vans for 2-3 hours daily. Again, this reflects typical life on the reservation, as most Navajo are accustomed to traveling long distances to their various destinations, be it school, work, or visiting relatives. At Camp, time spent on van rides is used to play games, interact socially, or even sleep, after a long day full of activities. Most spend van time visiting, while travelling through red-tinged mesas and the long vistas of the high desert, through the shadows of the three San Francisco Peaks, and the cool pines around Flagstaff. The Navajo staff who are van drivers always know the alternative routes to our destination, in case of closures or other problems on the road.

Navajo culture is always included, honored and respected. At Camp 2022 and 2023, the art & craft of drumming, making a drum, and decorating individual flutes, were part of our program, supported by grants from the Arizona Commission for the Arts. The student athletes received instruction in Native American-style flute playing. They often played their flutes while riding in the van or in their rooms.

Recognizing the importance of family tradition and relationships is another feature of Camp which aligns with Navajo culture and practice. When families bring their student athlete to Cameron, they become acquainted with the Camp nurse, Director, and their child's one-on-one coach, as well as get a chance to see the room in which their child will be staying. Family presence is also a highlight of the closing ceremony, where each coach presents an award to their student athlete to identify the athlete's individual achievements during Camp. At that ceremony, all staff make efforts to speak personally with families, recounting the unique successes, accomplishments, and personality of each child. Parents and families get an opportunity also to meet their child's new friends, as friendships are made and maintained long after Camp is over.

CAFC had planned a one-day golf clinic in Kirtland, New Mexico, on October 11, 2025, to include family members. This would have given student athletes the chance to spend time with their parents and siblings while enjoying the game of golf, and families the opportunity to see in person how coaches and instructors work with their child with visual impairment. Teen-age and adult non-golfers would have had the chance to learn a new skill. This first-ever clinic was created to honor a generous grant received last year from the Wadsworth Golf Charities Foundation. Mother Nature, in the form of Hurricane Priscilla, had other plans, and the clinic had to be cancelled due to heavy and prolonged rains and

winds, making some roads, both dirt and paved, impassable and dangerous. CAFC Board members used this time to visit the golf courses and meet the PGA professionals, and plans are in motion for the clinic to be held next year.

Conclusion

Camp Abilities Four Corners is embedded in the Navajo culture, largely due to their presence on the reservation for lodging, meetings and activities, as well as for maintaining a focus on providing culturally sustaining concepts and activities for student athletes. Every effort is made to include Navajo community members on the Board and staff, as well as to provide sports and recreational activities which are popular on the reservation and reflect the nature of the surrounding geographical region. For staff members unfamiliar with Navajo culture, a cultural considerations presentation is included during staff trainings. Everyone at Camp is reminded daily of the generosity of their hosts. Respect for the land is reflected in "treading lightly," cleaning up after outings, and being appreciative of the trees, rocks, plants and land formations surrounding athletes and staff daily.

Please visit the website at www.campabilitiesfourcorners.org for more photos, and to see how you can get involved and support CAFC, who say **Ahéheé** (Navajo thank you).

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Physical Activity and Motor Competence in Youth with Deafblindness: A Call to Action

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Abstract

Children and youth with deafblindness are less likely to participate in physical activity and more likely to live sedentary lifestyles. Reduced activity contributes to delayed motor development, lower motor competence, and poorer health-related quality of life. The purpose of this paper is to review available research on physical activity and motor competence in youth with deafblindness. Three databases—Science Direct, Google Scholar, and PubMed—were searched with inclusion criteria of children and adolescents (0–21 years) who were deaf or hard of hearing and blind or visually impaired. Ten studies published in the past 20 years met the

criteria, revealing a serious lack of research in this population. Findings highlight concerning differences in motor skills and balance between children with deafblindness and their peers without sensory impairments. For example, young children with deafblindness learn to walk significantly later than their peers without sensory impairments. Contributing factors include limited opportunities for physical activity and sports, reduced confidence and motivation, and environmental barriers. Support, encouragement, and modified equipment may foster participation and improve outcomes. Early exposure to physical activity could enhance motor skills, balance, and promote lifelong active lifestyles. Of particular concern is the scarcity of research addressing this population. Future studies should target cognitive and sensory integration, early intervention, developmental support, social and peer interaction, educational strategies, professional and caregiver training, and accessibility. Addressing these areas, alongside motivation and support, can significantly improve motor competence and balance in children and youth with deafblindness.

Physical activity is important throughout all stages of life, improving cardiovascular, muscular, and cognitive health and decreasing the risk of obesity, diabetes, cancer, and osteoporosis (World Health Organization, 2022). Conversely, increased sedentary behaviors can lead to negative health consequences such as osteoporosis, muscle atrophy, and obesity-related diseases. The World Health Organization recommends that children participate in 60 minutes per day of physical activity, however globally only approximately 20% of adolescents (11-17 years) were not participating in enough physical activity (2022). Children who have low physical activity levels are likely to have higher screen time and a higher body mass index (BMI; Alghamdi & Alsaigh, 2023).

Participating in physical activity is a way to prevent the negative consequences of living a sedentary life. During early motor development, children develop motor milestones which lead to the acquisition of fundamental motor skills (Clark & Metcalfe, 2002). Motor milestones and balance are foundational to the development of fundamental motor skills (FMS; Beach et al., 2024). FMS include locomotor skills (e.g. running, skipping, hopping, jumping) and ball skills (e.g. throwing, catching, rolling, striking). Young children build FMS by interacting with their environment (Beach, et al., 2021). FMS proficiency at a younger age is important because it leads to a higher motor competence and health-related fitness in adulthood (Stodden et al., 2008).

Children with sensory impairments tend to participate in even less physical activity than youth without disabilities (Lieberman, et al., 2006). This is perhaps not surprising considering sensory systems affords critical information for balance and movement. The visual system provides the brain with a picture of the surrounding environment and is the most important sense of balance (Hatzitaki, 2002). The vestibular system, located in the inner ear, senses linear and circular motion (Ator, 2019). The central nervous system interprets the sensory information and then signals muscle synergists to contract to maintain postural control and produce coordinated movements. The visual and auditory systems work together to provide exteroception, which is important for understanding the body's position in space (Herms, 2023). If a child has both hearing and visual impairments, they will have limited sensory information needed to balance and maintain postural control. Therefore, it is not surprising that children with visual impairments participate in less physical activity and have a lower level of fitness than sighted children (Stuart et al., 2006).

The National Center for Deafblindness (2022) characterizes deafblindness as a rare condition in which an individual has combined hearing and vision loss, thus limiting access to both auditory and visual information. There are over 10,000 children in the United States with deafblindness (NCDB, 2022). A 2019 survey that examined 1,000 children found that 0.1%-0.2% of children are born blind and

about 0.6% have moderate to severe hearing loss (Mcguire, 2019). There are 70 different causes of deafblindness defined by the National Center for Deafblindness (NCDB, 2022). The most prevalent causes of deafblindness in 2019 were hereditary syndromes or disorders (47.4%) such as CHARGE syndrome, Usher syndrome (I, II, III), and Down syndrome (Trisomy 21 syndrome). CHARGE syndrome is the leading cause of deafblindness in children (Dammeyer, 2012). Usher syndrome and CHARGE syndrome are different diagnoses but have very similar developmental delays (2012). One major difference between Usher syndrome and CHARGE syndrome is the age at which the developmental delays occur. Usher syndrome is characterized by deafness with a gradual loss of vision over the lifespan and mainly affects adults therefore it won't be as prominent in children. Whereas the effects of CHARGE syndrome are prevalent at birth and during childhood development (Dammeyer, 2012).

The sensory and motor impairments common in youth with CHARGE syndrome create many challenges to participating in physical activity. CHARGE syndrome is a genetic disorder with a variety of major characteristics including colobomas of the eye, choanal atresia, cranial nerve abnormalities, ear defects, heart defects, and genital defects (Hartshorne & Slavin, 2023). Colobomas refers to abnormalities in the iris, retina, or optic nerve of one or both eyes causing visual deficits. Approximately 80% of individuals diagnosed with CHARGE syndrome

have eye irregularities (Blake & Prasad, 2006). Ear abnormalities, including atypical structure of the ear and deafness, are another main characteristic with 80% or more individuals with CHARGE syndrome having ear abnormalities. Developmental and growth restrictions include stunted growth, growth hormone deficiencies, and lower IQ scores. Additionally, children with CHARGE syndrome often have lower muscle tone (Blake & Prasad, 2006).

Additionally, prolonged hospitalization is common in youth with CHARGE syndrome and can often prevent the children from socializing and participating in physical activity. A major concern with deafblind children is a low desire to participate in physical activity due in part to low self-efficacy (Haibach & Lieberman, 2013). Therefore, if children with deafblindness aren't confident in their ability to balance they might be less likely to participate in physical activities (Haibach & Lieberman, 2013). Participating in sports or group exercise typically requires special consideration for youth with deafblindness to accommodate their sensory impairments (Lieberman et al., 2025).

The research on the benefits of physical activity on children without deafblindness is plentiful. However, research on physical activity and motor competence in children with deafblindness is not comprehensive. Therefore, the purpose of this manuscript aims to examine the available research on physical

activity and motor competence in youth with deafblindness and provide solutions to the deficits found in the literature.

Literature Review

Literature search

The authors searched three databases: PubMed, Google Scholar, and Science Direct. The keywords in this study included:

1. "Youth" or "Adolescence" or "Child" and
2. "Deafblind*" or "Dual sensory" OR "CHARGE Syndrome" or "Usher syndrome" or the combination of "low vision", "visual impairment", or "blind" and "hearing loss" or "Deaf
3. "physical activity" or "motor competence" or "motor skills"

The initial search of all three databases yielded *n*=579 search results. Using the inclusion and exclusion criteria, 579 articles were reviewed by two of the authors. Articles that did not meet the criteria were excluded. Common exclusion criteria that were not met were including a combination of the three lines of keywords in the abstract or title, the document was a peer-review study, and the study population consisted of youth (21 years or below) with visual impairment or blindness and hearing loss or deafness. Most of the articles were excluded during the title and abstract screening. After the initial screening of the title and abstract n= 56 articles remained. The final screening excluded 46 out of the remaining 56

articles. The final exclusion of these articles was due to the study having no deafblind participants, rather the studies had some deaf and some blind participants. The other articles failed to report any issues of movement related to deafblindness. Once the full texts were screened, we were left with *n*=10 documents. Refer to Figure 1 for the Prisma diagram.

Results

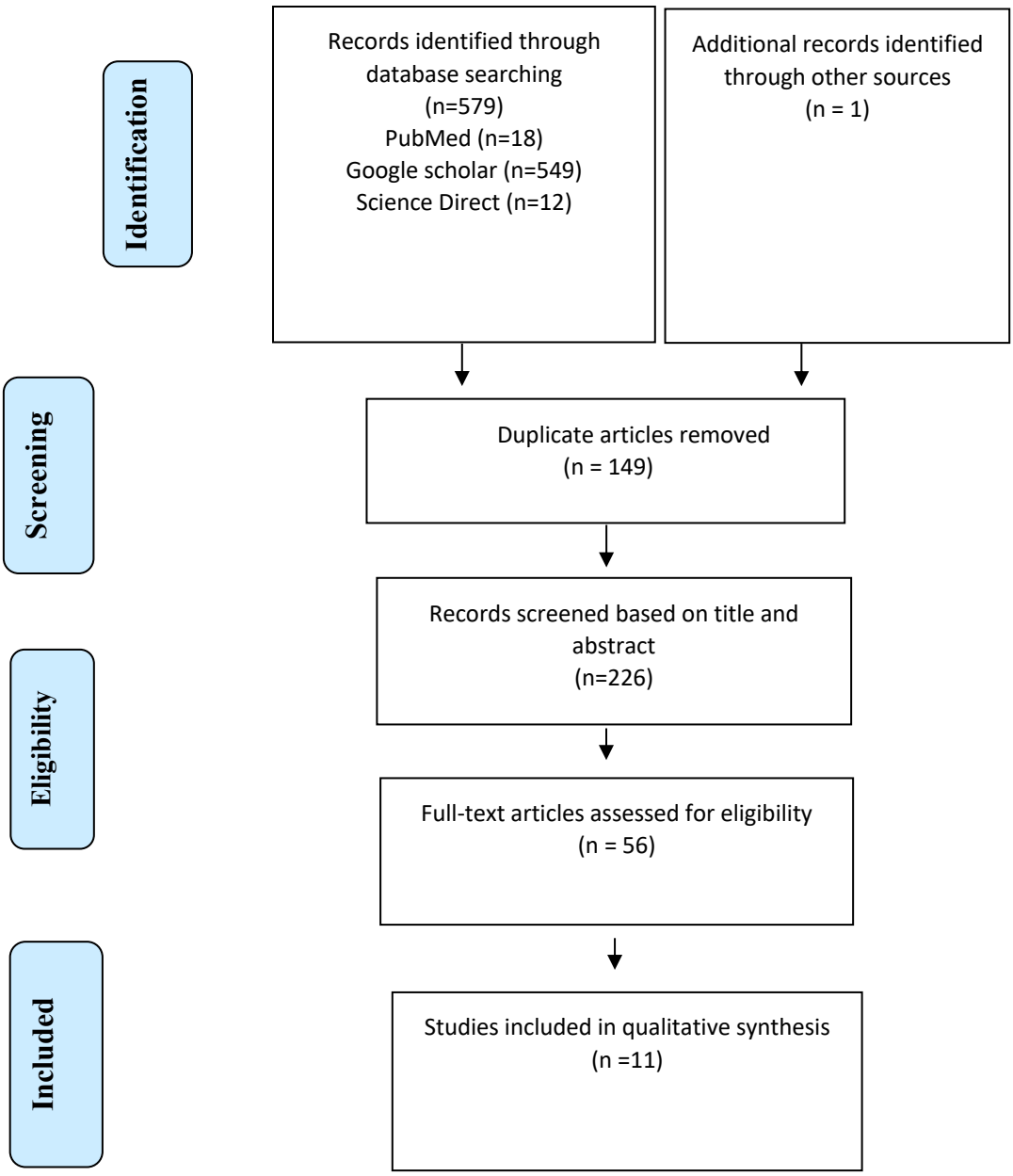
In this review of the literature, ten studies were identified that examined youth, deafblindness, physical activity and motor competence. A total of 579 articles were identified while searching the databases. From the total, 149 duplicate articles were eliminated and another 204 from the title. Screening of the title and abstract eliminated another 170 articles leaving 56 full-text articles to be assessed for eligibility. From the final screening ten sources were included in this review of literature call to action paper. Table 1 indicates key information from each of the articles used in this review. The tables included information on each study including the (a) author and year the study was published (b) study design (c) number of participants (d) aims of the study and (e) the key results of the studies

Participants

The total number of participants in the ten studies was *N*=438. Of the 438 participants, 51.4% (*n*=225) were females, and 48.9% (*n*=214) were males. The youngest age tested was 1.5 years old and the oldest age tested was 20 years old in

Figure 1

PRISMA Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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Table 1

Study Design and Findings from Each Article

Study (Authors, Year)	Design	Participants	Study Aims	Key Results
Arndt, Lieberman, Pucci (2004)	Qualitative – Observational	N=7 (Females=5, ages 12–19; Males=2, ages 12–13 & 20; M=15.8, SD=3.06)	Identify communication methods during physical activity at Camp Abilities (sports camp).	Three takeaways: (1) Allow time to explore equipment/environment; (2) Provide familiar face/expert for communication/comfort; (3) Allow communication time during activity (discrete vs. continuous).
Haibach-Beach, Perreault, Foster, Lieberman (2019)	Descriptive	N=65 (37 with CHARGE, M=9.64, SD=3.69; 28 controls, M=10.1, SD=3.57)	Compare gross locomotor skills in youth with vs. without CHARGE syndrome.	Controls outperformed CHARGE group on all skills. Boys > girls in slide skill only. Independent walking earlier in controls (1.05 yrs vs. 3.75 yrs). Age of walking strongly negatively correlated with motor skills, especially running.
Haibach-Beach, Perreault, Lieberman, Stribing (2021)	Descriptive	N=71 (33 with CHARGE, M=6.75, SD=2.57; 38 controls, M=6.97, SD=2.27)	Assess motor competence and parent perspectives.	Moderate–strong correlation between parent perspectives and children's locomotor/ball skill performance.
Haibach-Beach, Perreault, Lieberman, Foster (2020)	Correlational	N=50 (28 with CHARGE, M=11.0, SD=2.94; 22 controls, M=11.09, SD=2.27)	Examine associations between balance and age of independent walking.	Controls scored higher on all balance tests, especially anticipatory control. Independent walking earlier in controls (12.8 months vs. 44.4 months). Balance strongly negatively correlated with age of walking.
Beach, Perreault, Lieberman (2021)	Descriptive	N=60 (28 with CHARGE, M=2.4, SD=0.80; 32 controls, M=2.34, SD=0.63)	Measure motor development and home environment.	Controls achieved motor milestones earlier and more frequently. Controls scored higher on AHEMD affordances, especially outdoor space. Age of standing/walking correlated with fine/gross motor toys and home affordances. Household size and income positively related to stimulation and affordances.
Haibach, Lieberman (2013)	Descriptive	N=43 (22 with CHARGE, M=8.5, SD=2.09; 21 controls, M=9.3, SD=1.8)	Compare perceived vs. actual balance scores.	Controls scored significantly higher on PBS (M=55.93/56, low-risk). CHARGE group scored lower (M=35.67/56) and lower on ABC. CHARGE participants more confident in familiar settings; highest self-efficacy for walking at home.
Lieberman, Haibach-Beach, Perreault, Brian, Bebriša-Fedotova (2021)	Experimental	N=6 (ages 3–9; Females=5; Males=1; M=5.8, SD=1.9)	Test feasibility of 6-week home motor skills intervention.	4 participants completed TGMD-3 pre/post: 67% scores improved, 20% unchanged, 13% decreased. Parents' perceptions remained same or improved.

Study (Authors, Year)	Design	Participants	Study Aims	Key Results
Lieberman, Stuart, Hand, Robinson (2006)	Mixed Methods	N=14 (ages 10–12; Females=8; Males=6; M=11.6, SD=1.7)	Assess steps taken during sports camp using talking pedometer.	Pre-camp steps below recommended levels; during camp, steps met/exceeded recommendations. Pedometer perceived as motivating and useful.
Perreault, Haibach-Beach, Foster, Lieberman (2020)	Correlational	N=37 (ages 3–16; Females=20; Males=17; M=9.6, SD=3.7)	Measure locomotor, control skills, and balance in youth with CHARGE.	TGMD-2: best locomotor = slide, jump, run; best object control = kick, throw. Balance tests correlated strongly with motor skills. Age of walking negatively correlated with anticipatory control, sensory orientation, reactive postural control, running, and throwing.
Perreault, Haibach-Beach, Lieberman, Foster (2021)	Descriptive	N=71 (33 with CHARGE, M=6.75, SD=2.57; 38 controls, M=6.97, SD=2.27)	Compare locomotor and ball skills in youth with vs. without CHARGE.	Controls performed significantly better on all 13 skills, especially hop, underhand roll, skip. Controls walked earlier (12.52 months vs. 36.71 months). No gender differences.
Lieberman, Perreault, Beach (2025)	Descriptive	N=14 (Females=10; Males=4; M=15.0, SD=3.5)	Identify barriers to physical activity in youth with CHARGE syndrome.	Youth reported personal, social, and environmental barriers limiting participation.

the ten studies. The range of the median ages was 2.34 years to 15.5 years. The inclusion criteria state that the participants had to be 21 years old or younger. Only one study included a participant who was above 21 years old and, therefore, was excluded from the data pool.

Of the 438 participants in this review, 206 did not have deafblindness. The remaining 232 participants had various levels of deafblindness. Of the 232 participants, 87.5% (*n*=203) had CHARGE syndrome, 4.7% had Usher syndrome, and 7.8% (*n*=18) of the participants had some level of blindness and were hard of hearing.

Research designs

Six of the eleven studies (50%) used a descriptive study design (Beach et al., 2021; Haibach & Lieberman, 2013; Haibach-Beach, et al., 2019; Haibach-Beach, et al., 2021; Lieberman et al., 2025; Perreault, et al., 2021) whereas two used a correlational study design (Perreault, et al., 2020; Haibach-Beach, et al., 2020) One study used an experimental study design (Lieberman, et al., 2021). One study (10%) used a qualitative observational study design (Arndt, et al., 2005) and one study (10%) used a study design with mixed methods (Lieberman, et al., 2006).

Assessments

Three studies (Haibach-Beach, et al., 2021; Lieberman, et al., 2021; Perreault, et al., 2021) utilized the Test of Gross Motor Development, third edition (TGMD-3) to assess the 13 fundamental locomotor skills (run, jump, skip, hop, slide, gallop) and ball skills (overhead throw, catch, kick, dribble, one or two hand strike, underhand roll). This test is eligible for developing youth (Lieberman, et al., 2021). Two out of the ten studies (Haibach-Beach, et al., 2020; Perreault, et al., 2020) used the TGMD-2 to assess motor skills. The TGMD-2 is a test that evaluates six locomotor skills (slide, jump, hop, leap, gallop, run) and six objective control skills (underhand roll, dribble, strike, catch, overhand throw). Perreault (2020) modified the TGMD-2 to assess five motor skills (run, slide, overhand throw, kick, jump).

Two studies (Haibach-Beach, et al., 2020; Perreault, et al., 2020) used the Balance Evaluation Systems Test (BESTest) to assess balance. Both studies used a shortened version of the BESTest to assess dynamic gait, sensory orientation, reactive postural control, and anticipatory control. One study (Haibach & Lieberman, 2013) used the Pediatric Balance Scale (PBS) test to assess balance. The PBS balance test is a modified version of the Berg balance scale designed for youth with motor impairments (Haibach & Lieberman, 2013). One study (Beach, et al., 2021) used the Affordances in the Home Environment for Motor Development (AHEMD) questionnaire to determine and compare motor milestones between the experimental and control groups. Another study used the Physical Activity Barriers Questionnaire for Youth with Visual Impairments (PABQ-VI) to assess children with CHARGE syndrome's barriers to physical activity (Lieberman et al., 2025).

Types of Physical Activity

Two of the articles reviewed (Arndt et al., 2005; Lieberman et al., 2006) were completed at Camp Abilities. Camp Abilities is a weeklong sports camp for youth and young adults who are visually impaired or deaf (Arndt et al., 2005). During the sports camp, the participants participated in pre-planned sports and

games such as beep baseball, goal ball, judo, track and field, swimming, canoe and kayaking, tandem biking, and gymnastics.

Overall Results

The ten studies examined in this review tested motor competence and balance. In both the balance and the motor skills tests the participants without deafblindness outperformed those with deafblindness. Some of the studies used a qualitative approach by interviewing the participants.

Motor Competence

Five out of the ten studies (50%) assessed motor competence in youth with deafblindness. In each of these studies, the participants without deafblindness performed significantly better than youth without sensory impairments. Two studies (Haibach-Beach et al., 2020; Perreault et al., 2020) used the TGMD-II. For locomotor skills the participants with deafblindness performed the best on the jump and slide and the lowest on the run. The youth with deafblindness' highest score from the object control skills was the kick and the lowest on the overhand throw. Three studies (Haibach-Beach et al., 2021; Lieberman et al., 2021; Perreault, et al. 2021) used the TGMI-3 test to assess locomotor and ball skills. The locomotor skills that the deafblind participants scored the highest scores were the gallop, run, and slide and the lowest scores were the hop and jump. The highest ball skills were the kick, throw, and dribble and the lowest was the roll.

Balance

Three out of the ten studies (30%) assessed balance in youth with deafblindness. The results from the two studies that used the mini BESTest (Balance Evaluation Systems Test) to assess balance found that the participants without deafblindness scored higher on all the balance skills. One study used the Pediatric Balance Scale (PBS) balance test and their results also showed that the group without deafblindness scored higher on all the balance skills tested. Two out of the three sources (Haibach-Beach et al., 2020; Perreault et al., 2020) that tested balance skills found that the participants with deafblindness struggled most with anticipatory control skills in comparison to the other balance skills.

Qualitative themes

Two of the ten studies (20%) used a qualitative approach. Both studies were conducted at Camp Abilities where researchers interviewed the participants. One of the studies aimed to understand how children with deafblindness communicate during physical activity. One of the themes that emerged from this study was the importance of allowing time for exploration of the environment and equipment that the participants will be using before the activity begins. Another theme from this study was providing the participants with a familiar face, such as a family member or caregiver, to help communicate during the activity. The last theme from this

study was allowing time during the activity for communication (Arndt et al., 2005).

The second study found that the participants enjoyed using a talking pedometer because it was motivating by providing a fitness goal. The participants understood the connection between the number of steps and the health benefits. The talking pedometer also promoted independence, and the participants felt they could walk instead of waiting for a ride (Lieberman et al., 2006).

Interventions

Only one of the ten studies was an intervention (Lieberman et al., 2006). Participants with CHARGE syndrome were pre- and post-tested on locomotor skills (run, jump, skip, hop, slide) and ball skills (throw, catch, kick, dribble, one or two hand strikes) following six weeks of home practice twice a week. The parents were provided videos, tip sheets, instructions on how to teach each motor skill and modified equipment, such as plush balls and a kickball with bells. Before and after the six-week intervention the participants were tested on their locomotor and ball skills using the TGMD-3 assessment. During the six weeks, the participants practiced the four skills they scored the lowest on during the pre-intervention test.

Discussion

This review of literature and call to action aimed to assess the available research on physical activity among deafblind youth. Research on youth with

deafblindness and physical activity is scarce. More research in developmental milestone delays is necessary for children with CHARGE and Usher syndrome to determine their effects and possible interventions. The results from this review revealed that in every balance and motor skills test children without deafblindness performed better than the children with deafblindness. These findings align with other studies that have investigated sensory impairments in physical performance. Children with CHARGE syndrome or deafblindness tend to have developmental delays such as balance, cognitive, and motor delays (Haibach & Lieberman, 2013).

Balance is a crucial element to performing everyday tasks and is maintained by the body's ability to use visual and vestibular inputs of the body's position in its environment to maintain postural control. More than 80% of children with CHARGE syndrome have low vision or blindness in one or both eyes (Issekutz et al., 2005). Many children with CHARGE syndrome possess abnormalities of the vestibular organs in the inner ear (Hartshorne & Slavin, 2023). Therefore, the poor balance performance scores found in this review are understandable as most of the studies included participants with CHARGE syndrome. Similar studies examining children with one sensory impairment, deafness or blindness, found that children with the impairments also performed behind their sighted and hearing peers on balance tests.

Children with dual-sensory impairments typically have fewer chances to participate in physical activity due to various barriers. Some of these barriers include a lack of knowledge by teachers and staff and inappropriate equipment (Lieberman et al., 2013). Some of the barriers to exercising can be reduced with increased support and advocacy of parents or caregivers for their child's physical education and motor development. Interviews conducted at Camp Abilities, a one-week physical activity camp, revealed the importance of allowing a child with deafblindness to be comfortable before and during physical activity (Arndt et al., 2005). The children stated that having time to familiarize themselves with the equipment before use was beneficial (e.g. preteaching; Lieberman et al., 2013). While youth without disabilities can use their eyes to visually process equipment before using the equipment, children with deafblindness might rely on tactile senses to gain an understanding of the equipment.

In a study assessing balance, participants with CHARGE syndrome reported on the Activities-specific Balance Confidence (ABC) Scale as having low confidence in their balance. However, when comparing the different balance tests, the children had the most confidence in tests that used familiar areas. Walking around the house was reported as the most confident skill tested for the group (Haibach & Lieberman, 2013). The children from camp abilities also stated that having a family member or caretaker with them during physical activity is

beneficial. Children who are deafblind might have communication barriers therefore, it is important to provide them with a trusted person who can understand their needs (Lane et al., 2020).

Associations between the home environment and children with and without CHARGE syndrome were found (Beach, et al., 2021). While associations were found for both populations, the home environments of the children without CHARGE syndrome had more affordances (toys, space to play, etc.) than the homes with children with CHARGE syndrome. The children without CHARGE syndrome had more toys and space to play therefore they had more opportunity to develop their motor skills at home. Parents play a major role in the home environment and development of motor skills of their children. More research examining the households of children with deafblindness and their motor competence is needed to understand the importance of the home environment on the children's motor abilities.

Youth with deafblindness independently walk later than the group of children without deafblindness by around two years (Beach et al., 2021; Haibach-Beach et al., 2019; Haibach-Beach et al., 2020; Perreault et al., 2020; Perreault et al., 2021). There was also a strong correlation between the age of independent walking, and performance on locomotor skills and ball skills (throwing, kicking, etc.; Haibach-Beach et al., 2019; Haibach-Beach et al., 2020; Perreault et al., 2020;

Perreault et al., 2021). The results from the studies indicated that the younger the age of independent walking the better the participants scored on the motor skills assessments. If children with deafblindness are learning to walk independently at much later ages, their development of motor skills and overall motor competence will also be delayed. Therefore, one of the main takeaways from this research is the importance of encouraging physical activity and practicing motor skills with youth with deafblindness at a young age.

In a study by Lieberman and colleagues (2021) six participants with charge syndrome participated in a six-week motor skill intervention. During the intervention, youth with CHARGE syndrome practiced motor skills twice a week and improved their motor skill performance after the intervention. Further interventions should take place to understand the possibilities of increasing groups' motor abilities. While this is the only known motor skill intervention for youth with deafblindness, there have been interventions in youth with visual impairments (Brian et al., 2020; Githinji et al., 2024; Miedema et al., 2022). The results from these studies reveal that with practice and experience, motor competence can improve in youth with visual impairments and deafblindness.

Call to Action: Future Research Desperately Needed

There is a severe lack of research in the area of motor competence and physical activity. In addition to the home environment, opportunities for physical

activity, and motivation, several other areas need to be addressed to improve motor competence and balance in children with deafblindness. Sensory integration challenges, particularly involving vestibular and proprioceptive systems, can significantly impact balance and coordination, making targeted sensory therapies essential. Early intervention is critical, as identifying and supporting motor delays during formative years can lead to better long-term outcomes. Social interaction also plays a vital role; inclusive play environments and peer modeling can encourage movement and build confidence. Educational strategies such as adapted physical education programs and the use of assistive technology can make physical activity more accessible and engaging. Furthermore, training for caregivers, educators, and therapists ensures that children receive consistent and informed support across settings. Environmental accessibility, including safe and stimulating spaces, is also key to encouraging exploration and movement. By addressing these interconnected factors, we can create a more supportive framework that fosters physical development and lifelong activity in youth with deafblindness.

Practical implications

Children with deafblindness have many potential barriers to participating in physical activity. Parents and supporters of these children play an important role in helping to prevent many of these barriers. Providing children with the correct play toys and equipment can help promote physical activity (Beach et al., 2021).

Children given the opportunities and modified resources to participate in physical activity can improve their motor skills. Encouragement and opportunities can also increase children's confidence and might help further motivate them to participate in physical activity.

The environment itself is very important to the success of children with deafblindness during physical activity. Arndt et al. (2005) and Lieberman et al. (2006) interviewed seven children with deafblindness who were at Camp Abilities, a camp that promotes physical activity for children with vision impairments and/or deafblind and learned the children performed better in comfortable environments. A comfortable environment was described as a place that has familiar people such as a caretaker, family member, or trusted individual who can support them through the activity. Another key takeaway from the interviews was that the children felt more confident and comfortable with certain physical activities when they had time to explore and familiarize themselves with the environment. This is especially important to individuals with visual impairments because they can't always see the equipment they are using. Most of the youth with sensory impairments reported that they felt more comfortable when they were given time to touch the equipment and familiarize themselves with the environment before doing the physical activity. It is important to allow time for youth with deafblindness to spend time learning and preparing for physical activity before participating in it (Brum et al., 2024).

When a person who is deafblind is participating in physical activity, it is beneficial to have a trusted support system present. Some of the youth at camp relied on an interpreter to help them understand the instructions for the tasks. It is crucial to provide youth with deafblindness a way of communicating before, during, and after physical activity. Providing a child with deafblindness someone who is used to communicating with the child or other individuals with similar diagnoses can help comfort the child and encourage them to participate. One study found that the number of children in a household positively correlates to the children's motor abilities (Beach et al., 2021). When the children with deafblindness are accompanied by trusted faces such as family members and supporters the children tend to have more motivation to participate in physical activity which improves their overall motor skills. Often, these children lack many opportunities to develop their social skills and as a result, have fewer friends. Children without sensory impairments often participate in physical activity with friends at places like schools, recreational sports leagues, and around the neighborhood. Children with dual-sensory impairments might not have these opportunities to interact with children without sensory impairments if they go to a specialized school or are not on sports teams. Providing children with opportunities to be physically active with other people such as at Camp Abilities can motivate the children to exercise.

The two studies (Arndt et al., 2005; Lieberman et al., 2006) that took place at Camp Abilities found that the children were more physically active while they were there in comparison to when they were home or in school. This sports camp provided the children with deafblindness games and sports that they could participate in such as beep baseball, swimming with floaters, and tandem biking. Providing children with deafblindness opportunities to do physical activity is an effective way to encourage them to participate.

Limitations

The area of research in the physical activity of youth with deafblindness is limited. First, there are very few researchers examining this topic and the scope of work is limited. Future research should expand beyond process-oriented assessments, TGMI-3, and TGMI-2, to also examine product assessments for motor skills in youth with deafblindness. Similarly, the BESTest was predominantly used to test the participants' balance. There was little variance in the mode in which motor skills and balance were tested. It should also be noted that many participants also had additional disabilities which affected their ability to complete some of the assessments.

A major limitation in the research available is the severity of deafblindness throughout the studies. These studies included youth with different levels of deafblindness and/or CHARGE syndrome. Some participants had a more severe

deafblindness than others making it hard to compare across findings. Additionally, deafblindness includes a wide variety of diagnoses therefore some children who are deafblind have minor hearing and visual impairments whereas others might be completely deaf and blind. Some of the studies reviewed had participants with other disabilities such as cerebral palsy and autism spectrum disorder. The studies mainly compared youth with deafblindness to other youth without deafblindness or any disabilities and the results of the studies were conclusive that the children without deafblindness have higher motor competence.

Finally, it should be noted that two of the ten studies were conducted at Camp Abilities, a one-week sports camp for youth with visual impairments. This camp provides youth with vision impairments and/or deafblindness an opportunity to participate in various physical activities. This camp is only offered to a small number of youth and therefore the sample sizes for the two studies were small and therefore not very generalizable.

Conclusion

The findings from this scoping review reveal very limited work in the area of physical activity and deafblindness. Much of the research conducted on youth with deafblindness has focused on youth with CHARGE syndrome and on assessments of FMS and balance. Findings revealed lower motor competence and balance in youth with deafblindness with age of independent walking and other

motor milestones associated with lower motor competence in comparison to their peers without sensory impairments. Children without sensory impairments often develop fine and gross motor skills through exploration of their environment and play with toys or other children. However, children with deafblindness or CHARGE syndrome often lack the same opportunities, support, or confidence as their peers without sensory impairments to develop their skills. Providing youth with deafblindness proper toys, areas to play, and other children or caregivers can help promote physical activity. There is a dire need for more research and interventions to be conducted on youth with deafblindness to further understand how to most effectively improve their motor competence and increase their physical activity and lead healthy independent lives.

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Learning Objectives:

1. Participants will learn about the unique and foundational aspects of the itinerant teaching model and how vision impairment professionals have adapted to this teaching model to serve the students they work with.
2. Participants will learn about the emerging need for independent contractors for children and students with visual impairment in charter schools, regional centers, non-profit, and other institutions.
3. Participants will learn how they can expand their current use of effective organizational strategies for planning, scheduling, documenting, and communicating using traditional and electronic methods, to help them decide if independent contract work may be a good fit.

Speakers: **Patricia Camarillo, NBCT/TSVI, and Jamie Maxfield, O&M, Fresno Unified School District, Fresno, California**

Patricia Camarillo is a Teacher of the Visually Impaired for over 20 years and achieved National Board Certification in 2021 in Exceptional Needs. She has worked in an itinerant capacity for over 90% of her teaching career and holds teaching credentials in Multiple Subjects, Visual Impairment, Orthopedic Impairment, and Early Childhood Special Education, including certificates in Assistive Technology from CSUN and UIC, Chicago. Over the last 6 years, she has worked in a part-time capacity as an independent contractor for charter schools, non-profits, and regional centers in California.

Jamie Maxfield is an Orientation & Mobility Specialist for students with visual impairments in Fresno Unified School District. After having her three daughters, Jamie returned to school in 2010 to pursue a Master's Degree in Orientation & Mobility from San Francisco State University, graduating in 2012. She has worked in a wide variety of settings, including: school districts, county office of education, CA Department of Rehabilitation, private schools, charter schools, contract work, and with ages ranging from pre-K to adults. Jamie is passionate about collaboration and working together to find the whole child perspective for each student.

Motivation for Physical Activity Participation Among Youth with Visual Impairments

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Abstract

Engaging in sports and physical activity has been widely recognized for enhancing quality of life, supporting psychological well-being, and promoting social skills. The benefits of physical activity for youth with disabilities include increased self-efficacy, reduced anxiety or stress, and improved health-related quality of life; however, little research exists on the motivations of visually impaired youth to

participate in sport. In this exploratory study, the Motives for Physical Activities Measure (MPAM-R) was administered prior to camp to collect quantitative data. Pre- and post-camp questionnaires provided qualitative insights. In total, 34 youth with visual impairments ages 6-17 from three different summer programs for children with visual impairments participated in data collection. For questionnaire items that elicited specific sports and activities as a response, researchers determined relative frequencies of each response. For other questions, qualitative data from questionnaires was coded for themes by question using a general inductive approach until a point of saturation. Results from the MPAM-R categorized motivation into four areas: interest/ enjoyment, competence, fitness, or social. Significant differences were found between the transformed means for a) interest/enjoyment versus fitness ($t=4.90, p<.0001$), b) interest/enjoyment versus social ($t=3.84, p=.0008$), and c) competence versus fitness ($t=2.68, p<.0376$). This indicates that the primary reason children in this study participate in physical activity is interest/enjoyment, followed by competence. Qualitative data provided a richer narrative regarding reasons for participation in fitness activities, current physical activities, preferred activities, and who encouraged participation in physical activities.

Key words: *visual impairment, motivation, physical activity, sport*

Engaging in sports and physical activity has been widely recognized for enhancing quality of life, supporting psychological well-being, and promoting socialization, relationship-building, and communication skills (Morela et al., 2024). The benefits of physical activity for youth with disabilities are numerous and include increased self-efficacy, reduced anxiety or stress, and improved health-related quality of life (Bloemen et al., 2017; Martin, 2013). However, youth with visual impairments and blindness often lack access to quality physical activity experiences.

Physical activity is particularly important for youth with visual impairment as it enhances not only physical fitness and health but also psychological well-being, socialization, and motor skill development. According to Cain et al. (2023), many students with visual impairments have positive views of physical activity and are indeed motivated to participate, but the barriers they face include opportunities and societal factors that may make it difficult to attain the myriad of benefits that physical activity potentially provides. Physical activity offers chances to build friendships and social connectedness and, therefore, impact overall quality of life. Furthermore, for children with visual impairments in particular, physical activity can contribute to decreased injury from falls, increased postural control, and improved orientation and mobility skills (Boguszewsk et al., 2013; Müürsepp et al., 2018; Rogge et al., 2021). Additionally, physical activity yields benefits to

cardiovascular health and improved self-concept for youth with visual impairments (de Schipper et al., 2017). Notably, outdoor activities offer children with visual impairments avenues for enjoyment, independence, and positive relationships (Lieberman et al., 2023a). Reports from youth with visual impairments highlight feelings of pride, enjoyment, and accomplishment through outdoor participation (Lieberman et al., 2023b). Despite the known benefits, little research exists on the motivations of visually impaired youth to participate in sport.

Motivation to Participate

Athletes with physical disabilities between the ages of 12 and 18 appear to engage in sport and physical activity with greater intentionality and a clearer sense of purpose compared to individuals in older age groups (Yılmaz et al., 2020, p. 60). Social connectedness, challenge, and achievement are motivators for participation for individuals with physical disabilities (Mckenzie et al., 2021). For youth with intellectual disabilities social interaction is a key driver for participation. Many young people express a desire to form friendships, be part of a group with enjoyable shared experiences through physical activity (McGarty & Melville, 2018). This highlights the importance of inclusive and supportive environments that prioritize interpersonal wellness alongside motor skill development.

Motivation emerged as a critical factor influencing physical activity participation among the individuals in a mixed-methods systematic review

exploring the barriers and facilitators to physical activity participation among adolescents and adults with childhood onset physical disabilities (McKenzie et al., 2021). Motivators included the enjoyment of activity, a sense of achievement, personal goals, improved health, and especially the social benefits such as feeling connected, included, and supported. Feeling competent and receiving positive feedback also enhanced motivation. Many of the motivational challenges and enablers such as the importance of inclusive social environments, the role of self-confidence, and the impact of perceived social judgment are highly relevant to people with visual impairments especially as they may face similar barriers to participation in physical activity.

For children with visual impairments, social skills and interactions is a primary concern for parents, who often view sport participation as a means to enhance their child's communication skills, confidence, and ability to interact with others (Clements et al., 2024). These findings suggest that beyond physical health or performance outcomes, social connectedness and the development of interpersonal skills are significant motivators for sport involvement especially among youth with disabilities. Kirk and Haegele (2021) examined how adults with visual impairments perceive physical activity in relation to their identity, confidence, and personal values. Their findings suggest that while participants recognize the physical and emotional benefits of activity that their motivation is

shaped by fluctuating confidence levels and the need to weigh the perceived costs such as accessibility challenges and safety issues against the potential rewards. These insights reflect a complex interplay between self-perception and motivation. Although the study focuses on adults and its conclusions may intersect with the behaviors and beliefs of children with visual impairments as attitudes toward physical activity and identity begin to develop prior to adulthood. The study underscores the importance of developing environments that enhance confidence and reduce barriers to participation across all age groups.

Morela et al. (2024) examined self-esteem and motivational aspects among Greek athletes who are blind or visually impaired. They compared those in individual sports to those in team sports. They found that self-esteem plays a significant role in motivation and that participating in both individual and team sports provides motivational benefits. It should be noted that the nature and magnitude may differ depending on the structure, social context, and perhaps level of peer interaction in team vs individual sports.

Al Harthy et al. (2023) found that individuals with visual impairments demonstrated higher levels of extrinsic motivation compared to other disability groups. This suggests that their participation in sports is more strongly influenced by external factors such as recognition or social support, rather than internal drivers like personal enjoyment or self-fulfillment. The findings highlight the

importance of considering these motivational patterns when designing inclusive sports programs for individuals with visual impairments.

Taken together, these insights reveal that while the motivations for engaging in sport may differ across types of disabilities and developmental stages, the underlying value of sport as a tool for empowerment whether through health-related goals, social connections, or physical skill building, is consistently recognized by youth and their families. This emphasizes the need for adapted sport programs to be responsive not only to physical capabilities, but also to the emotional and social needs of youth with visual impairments. Overall, motivation may be closely tied to social context and emotional experience which will foster positive environments that can play a key role in encouraging physical activity in this population.

Barriers to Participation

Despite interest and motivation to participate in physical activity, young people with visual impairments experience access and societal barriers to entry. According to Chia-Hua et al. (2020), lower levels of physical activity represent a significant health concern for individuals with visual impairments. Furthermore, Tindall et al. (2017) report that as compared to their same age peers, children with visual impairments participate in fewer physical activities. Multiple factors are involved in the barriers to participation in physical activity by youth with visual

impairments, including level of visual acuity, lack of access to adapted programing, societal attitudes, and family barriers.

Although their research was not specific to children, Chia-Hua et al. (2020) sought to examine barriers to and facilitators of physical activity. They found that most individuals with visual impairments involved in the study did not participate in sufficient physical activity noted by the recommended daily moderate or more strenuous activity. They also noted that the duration of the physical activity was decreased. Children with visual impairments are less likely to participate in physical activity (Harrington et al, 2023). Barbosa Porcellis da Silva (2018) and Stewart et al (2006) found that persons who had better visual acuity had higher levels of participation. This was most likely due to higher rates of self-efficacy in those with better visual acuity. Those with lower visual acuity may have a lower sense of autonomy leading to being less motivated to participate in physical activity. Children with more severe visual impairments scored notably lower on environmental subscales (Lieberman et al., 2025).

Programmatic Barriers

Parents of children with visual impairment cite lack of access to appropriate adapted programming as a major barrier to participation (Columna et al., 2017). Additionally, parents do not perceive they have the necessary knowledge to facilitate participation in physical activity with their children (Columna et al.,

2017). Furthermore, families of children with visual impairments often have transportation issues or must rely on extended family for transportation due to the distance at which they have to travel to attend adapted physical activity events (Ayvazoglu, et al., 2016). Similarly, adults with visual impairments note dependence on others, lack of reliable transportation, unavailability of local adapted sport programs, and lack of qualified supervision as barriers to participation (Jaarsma et al., 2014).

Lack of suitable programming and adapted equipment, as well as low expectations from adults, can hinder physical activity participation for youth with visual impairments (Lieberman et al., 2023a; Stuart et al., 2006). Several studies show that instructors also felt unequipped to make adaptations to lessons and use adapted equipment, and they were afraid for their students' safety during lessons (Haibach et al., 2014; Stewart et al., 2006; Lieberman & Houston-Wilson, 1999).

Societal Barriers

Overprotectiveness and the belief that those with visual impairments are incapable is another barrier that children with visual impairments need to overcome. Stewart et al. (2006) shows that many children with visual impairments cite overprotective parents as a barrier to participation. Societal attitudes towards blindness and the capabilities of individuals with visual impairments is another barrier to sport participation (Linsenbigler et al., 2018). Stuart et al. (2006)

identified factors such as social stigma and limited activity options as deterrents to physical activity among children with visual impairments. Nowland et al. (2024) found that children with visual impairments felt undervalued when physical education teachers did not accommodate for their needs.

Motor Competence

Children with visual impairments demonstrate lower motor competence than sighted peers with severity of vision loss being the strongest factor influencing gross motor performance. (Haibach et al., 2014). Specifically, children who are blind show poorer motor competence than those with low vision. Additionally, children with visual impairments experience lower perceived motor competence compared to their sighted peers (Brian et al., 2018a).

For the last 40 years, many of the barriers that face persons with visual impairments have not changed; there continue to be societal beliefs, overprotectiveness, lack of access to adapted physical, and lack of knowledge on the part of physical educators (Lieberman et al., 2025). The purpose of this research was to to understand the perceived barriers, opportunities, and motivations to participate in physical activity by youth with visual impairments, as well as to understand the physical activity interests of youth with visual impairments.

Methods

Participants

In total, 34 youth with visual impairments ages 6-17 participated in data collection. All children were enrolled in a summer camp for children with visual impairments, lasting three to seven days, in one of three camp programs located around the United States. Returning participants, or those who had previously attended the same camp or other similar camps in the past, comprised 44.1% of the sample (15 athletes), while 50% of participants (17 athletes) had never attended the same camp or other similar camps in the past. Two participants chose to complete surveys anonymously and are of unknown prior participation status. Besides visual impairments, eight participants had additional disabilities, such as Down syndrome or autism. Participants who attended more than one camp program involved in this research project completed the survey and questionnaires at the first of these camps they attended for the summer. Two participants only provided qualitative data and did not complete any Likert scale questions.

Setting

Depending on the specific program participants attended, athletes were exposed to sports such as swimming, beep baseball, goalball, hiking/orienteering, skateboarding, canoeing, field hockey, rugby, volleyball, soccer, strength training, cross-country running, rock climbing and lawn games. Time dedicated to each sport included instruction from health and physical educators, blind athletes, and

experienced coaches. All of the camp programs involved in this research also incorporated lessons in health and wellness beyond athletics.

Procedures

This exploratory mixed methods research involved conducting a pre-camp survey and questionnaire as well as a post-camp questionnaire, all delivered orally to the athlete by their one-on-one coach. Responses were recorded by the coach. The initial survey (pre-camp survey) and pre-camp questionnaire occurred on the first day of camp. This study was approved by the Rowan University Institutional Review Board. Guardians signed consent forms, while youth participants signed assent forms.

Instrumentation

Coaches utilized the Motives for Physical Activities Measure, MPAM-R (Ryan et al., 1997), excluding the six questions relating to appearance (questions 5, 10, 17, 20, 24, and 27). The MPAM-R has been validated for use with general populations (Ryan et al., 1997); however, it has not been specifically validated for children with visual impairments. Coaches also administered a researcher-created questionnaire containing open-ended questions related to the MPAM-R measures (Figure 1), which were presented immediately following each corresponding MPAM-R item. The pre-camp survey and questionnaire were part of the camp program for all participants, regardless of if data was used in research.

On the last day of camp, athletes responded to qualitative open-ended questions on a post-camp questionnaire, also administered by their coaches. The post-camp questionnaire included questions about activities athletes enjoy, would like to try, and do not enjoy. Additionally, the questionnaire solicited responses to questions about the people who encourage or discourage physical activity in athlete's lives. Figure 2 details the post-camp questionnaire content. For both the pre-camp and post-camp data collection, coaches served as scribes and read the questions aloud.

Data Analysis

For questionnaire items that elicited specific sports and activities as a response, researchers determined relative frequencies of each response. For other questions, qualitative data from questionnaires was coded for themes by question using a general inductive approach (Thomas, 2006) until a point of saturation (Glaser & Strauss, 1967). All themes arose from the data with no predetermined codes. In order to help establish trustworthiness, researchers employed stepwise replication (Chilisa & Preece, 2005) in which researchers coded data separately and then compared results.

Quantitative data from Likert scales underwent statistical analysis using JMP. To understand what motivated the youth most, we compared the average scores for four areas (Interest/Enjoyment, Competence, Fitness, and Social) using

the Tukey Highest Significant Difference (HSD) test. This test looked at pairs of these areas (e.g., Interest/Enjoyment vs. Fitness) to see if their average scores were meaningfully different. It also ensured that the chance of a false positive was kept low, at no more than 5% across all comparisons, which makes the results reliable. Upon conducting the analysis, it was determined that the residuals were too heavily skewed (skewness = -1.22), so a Box-Cox transformation (λ=2) was performed, and a randomized block ANOVA was performed on the transformed data, reducing the skewness to a more acceptable level (-0.73) with a sample size of n=767. A Tukey HSD analysis was performed on the transformed data, creating pairwise confidence intervals for the differences in the means, with an overall error rate of .05.

Results

In this study, the MPAM-R (Ryan et al., 1997) was administered prior to camp to collect quantitative data. In addition, pre- and post-camp questionnaires provided qualitative insights along with relative frequencies of participant responses.

Pre-Camp Questionnaires

The pre-camp questionnaires gathered information about the activities athletes already engaged in, those they enjoyed or disliked, activities in which they felt competent, and areas where they wished to improve their skills. Table 1

summarizes the relative frequencies of responses obtained from the pre-camp surveys.

Reasons for Fitness

The pre-camp survey prompted participants to explain why they wanted to be physically fit. Themes that arose from the responses included health/ fitness (19 athletes, 55.9%), having fun (5 athletes, 14.7%), and appearance (2 athletes, 5.9%), with 3 athletes (8.8%) stating unknown reasons. Becoming stronger (8 athletes, 23.5%) arose as a sub-theme to health/ fitness. Athletes responded they desired to be physically fit, using statements like "because I want to be healthy and not lazy, " "need to be physically fit to do what I do," and "I want to be strong and have muscles." Participants who indicated they wanted to be physically fit for fun wrote statements such as "cuz [sic] it's fun" and "I just do it to have fun." Although appearance-related items were removed from the MPAM-R, two athletes still referenced appearance in their responses. These athletes wrote they participated in fitness activities "because I don't like my weight" and "so dad will stop calling [me] fat."

Current Activities

In addition to reporting their motivations for physical fitness, participants were asked to identify activities they engaged in with friends or family. Swimming was reported most frequently (13 athletes, 38.2%), followed by soccer (10 athletes,

29.4%); basketball (7 athletes, 20.6%); walking and running (6 athletes, 17.6%); recreational play, such as tag, nerf guns, going to the park (5 athletes, 14.7%).

Activities Athletes Like and Dislike

The pre-camp survey asked athletes about which sports they already liked and disliked. In terms of likes, top responses included swimming (17 athletes, 50%), walking/ running (9 athletes, 26.5%), basketball (7 athletes, 20.6%), softball/ baseball (6 athletes, 17.6%, 2 specifically indicating beep baseball), net games (4 athletes, 11.8%), and golf (4 athletes, 11.8%). Many of the activities athletes listed as a response to this question corresponded to the activities offered at the camp they were attending, despite the survey being administered prior to the camp program. Top rated dislikes included soccer (7 athletes, 20.6%), football (6 athletes, 17.6%), running/ walking (5 athletes, 14.7%), none (5 athletes, 14.7%), lacrosse (3 athletes, 8.8%), and baseball (3 athletes, 8.8%).

Activities Athletes Are Good At and Want to Improve

Athletes identified both activities they felt they were good at already and activities in which they wanted to improve their skills. The most commonly reported activities athletes felt they were good at included swimming (10 athletes, 29.4%), basketball (10 athletes, 29.4%), running/ track activities (9 athletes, 26.5%), soccer (6 athletes, 17.6%), and net games (5 athletes, 14.7%). Athletes reported wanting to improve their skills in swimming (10 athletes, 29.4%), soccer

(6 athletes, 17.6%), softball/ baseball (7 athletes, 20.6%, with 1 specifically indicating beep baseball), golf (5 athletes, 14.7%), and basketball (4 athletes, 11.8%).

Post-Camp Questionnaires

Responses to post-camp questionnaires revealed themes related to preferences, interests, motivations, dislikes, and encouragement to participate in physical activity.

Preferences, Interests, and Motivations

Following camp, participants were asked to report the sports and activities they enjoyed. Soccer was identified most frequently (18 athletes, 52.9%), followed closely by swimming (17 athletes, 50%). Softball/baseball was reported by 12 participants (35.3%), 11 of whom specifically cited beep baseball. Eight participants (23.5%) indicated enjoyment of basketball, track, and skateboarding, respectively. Participants were also asked about sports and activities they were interested in trying. Volleyball (5 athletes, 14.7%) was the most mentioned, followed by lacrosse (3 athletes, 8.8%) and beep baseball (3 athletes, 8.8%). This question was followed by an inquiry regarding participants' motivations for exploring new sports. These responses are presented in Table 2.

Disliked Sports

Post-camp, fewer participants overall reported disliking sports. When asked

which sports they disliked, 14 athletes (41.2%) indicated there were none. The most disliked sports were football (3 athletes, 8.8%) and baseball/ beep baseball (3 athletes, 8.8%).

Encouragement for Participation

Participants identified the types of encouragement they received for engaging in sports. These findings are summarized in Table 3.

Quantitative Data

A randomized block design was used to compare the average response for a series of 24 questions that were answered on a seven-point Likert scale. The analysis was blocked by the responder to control for people who tend to rate everything higher or everything lower. Due to the use of a Likert scale, the 24 questions were combined into four subjects: Competence, Fitness, Interest/Enjoyment, and Social. This process helps to produce response variables that can satisfy the underlying conditions of the ANOVA. The average scores for each area, based on 24 questions answered on a 1–7 scale, are shown in Table 4.

Motivations

Significant differences were found between the transformed means for a) interest/enjoyment versus fitness ($t=4.90, p<.0001$), b) interest/enjoyment versus social ($t=3.84, p=.0008$), and c) competence versus fitness ($t=2.68, p<.0376$). This indicates that the primary reason children in this study participate in physical

activity is interest/enjoyment, followed by competence. Table 5 displays the results of the Tukey Highest Significant Difference analysis.

The Tukey HSD test found three pairs with significant differences: Interest/Enjoyment versus Fitness, Interest/Enjoyment versus Social, and Competence versus Fitness. The average score for Interest/Enjoyment (6.29) was much higher than for Fitness (5.54), indicating that participants were far more motivated by enjoying activities and finding them fun (e.g., “I just do it to have fun”) than by fitness or health goals. Interest/Enjoyment (6.29) also scored higher than Social (5.64), showing that fun was a stronger motivator than social aspects such as spending time with friends. Finally, Competence (5.96) scored higher than Fitness (5.54), suggesting that feeling skilled or capable (e.g., “Strengthen my skills”) was a more important motivator than fitness.

These findings indicate that Interest/Enjoyment (having fun) was the top reason kids participated in camp activities, followed by Competence (feeling skilled). Fitness and Social reasons were less important. Other comparisons (e.g., Interest/Enjoyment vs. Competence) did not show significant differences, likely because their scores were closer together. These findings align with quotes like “I just do it to have fun” and suggest that making activities enjoyable and skill-focused is key to motivating these youth.

Impact of Previous Experiences

Competence was the second reason that our participants involved themselves in sports and physical activity. After noting that this result slightly contradicts previous research on perceived motor competence for students with visual impairments (Brian et al., 2018a) and that sports camps for youth with visual impairments can increase perceived motor competence (Brian et al., 2018b), we further analyzed the quantitative data to compare the groups of participants who had previously attended camp to those who had not. Of the 32 athletes who chose to identify themselves on their surveys, 46.9% (15 athletes) were returning, while 53.1% (17 athletes) had never attended the same camp or other similar camps in the past. Once again, it was determined that the residuals were too heavily skewed (skewness = -1.12), so a Box-Cox transformation ($\lambda=2$) was performed and randomized block ANOVA was run on the transformed data, reducing the skewness to a more acceptable level (-0.64) with a sample size of $n = 360$. A Tukey HSD analysis was performed on the transformed data, creating pairwise confidence intervals for the differences in the means, with an overall error rate of .05. The only significant difference in this situation was found between the transformed means for a) interest/enjoyment versus fitness ($t = 2.82$, $p < .0264$). All other pairwise comparisons had p-values of .33 or higher. Table 6 displays the results of this analysis.

Discussion

Need for Specialized Programming

There is a need for programs specifically designed for youth with visual impairments that expose them to a variety of sports (Lepore-Stevens & Schugar, 2023; Lieberman et al., 2023b; Stuart et al., 2006). These types of programs address unique barriers such as accessibility, guidance, and tailored instruction which might prevent full participation in general sports settings. In practice this may also be part of the development of an inclusive sports curriculum. The offerings should provide a wide range of activities rather than only the traditional sports taught. Lastly, the inclusive offerings would encourage participation in sports from a young age for youth who are blind or visually impaired with the potentiality of influencing lifelong positive physical habits. The youth in this study desired exposure to a variety of activities.

Impact of Encouragement and Supportive Adult Interactions

As evidenced by athlete responses in this study, encouragement is multi-dimensional. Participants did not just identify the importance of verbal support, but also emotional presence, teaching, and role modeling. A few participants expressed self-motivation or independence, saying they didn't need encouragement, but still benefited from support when offered.

Positive adult interaction and emotional support aid in self-determination in sport settings for youth with visual impairments (Lepore-Stevens & Schugar,

2023). These interactions consist of positive encouragement, motivation, and teaching including adaptations needed for inclusive sport. This type of relationship fosters self-determination and a positive outlook for physical activity. In essence, both the skill building and relationship focus must be included in programming. Adults may inadvertently discourage youth with visual impairments from participation and highlighting the need for the positive relationship and exposure to sport will influence participation.

The staffing strategy of the camps in this research included one-on-one coaching. Athletes identified that coaches at camp played an important role in their lives; nearly every participant who discussed encouragement identified one or more coaches who encouraged them, despite nothing in the question specifically asking about camp. Additionally, emotional safety and support from coaches mattered to the participants in this study. They noted that some coaches went beyond sports to offer comfort and connection. Athletes also identified that peer encouragement was powerful. Peer encouragement was often casual, fun, and confidence-boosting. These results echo prior research (Lepore-Stevens & Schugar, 2023; Lepore-Stevens & Foster, 2024) regarding emotional safety, self-determination, and encouragement for youth with visual impairments.

Early Sport Sampling

Many sports participants listed as activities they enjoy on both pre- and post-

questionnaires corresponded to the sports offered at the camp the participant was attending. This seems to indicate young people may be most interested in activities to which they are exposed. Early sport sampling promotes long-term success and enjoyment in sports (Jayanthi et al., 2019). Diversifying movement patterns from a young age also allows youth to develop a wider range of neuromuscular patterns that can prevent injury (Jayanthi et al., 2019). Children with visual impairments may benefit from early exposure to a variety of sports to promote interest and enjoyment in physical activity.

Perceived Motor Competence

Children with visual impairments often demonstrate low levels of perceived motor competence compared to their sighted peers (Brian et al., 2018a). However, in the present research, *competence* was the second most common reason children participated in physical activity after interest/ enjoyment. Prior research shows that participation even in a one-week sports camp designed for youth with visual impairments can increase perceived motor competence (Brian et al., 2018b). However, there were no statistically significant differences in competence ratings between returning and new athletes. Future research could compare scores on a similar assessment between children who are not attending a sports camp and those who are to determine if motivations may be different.

Limitations

There are limitations to this research regarding both methodology and generalizability. With respect to methodology, questionnaires were based on the valid and reliable MPAM-R (Ryan et al., 1997) but not validated themselves. We also removed appearance-related MPAM-R questions due to the age of our participants. Additionally, young children may not have understood the questions completely. After receiving the surveys, several were returned immediately to participants with a reminder to use the given Likert scale and not include numbers above the set range.

With respect to generalizability, our sample size was small. Prior research indicates that parental values around physical activity and desire for their children to be involved in sports heavily influences physical activity participation (Clements et al., 2024). All athletes in the present research completed surveys at a sports camp for youth with visual impairments. Their presence at the program implies that either themselves and/or their families value physical activity to some degree already.

Conclusion

High-quality physical activity experiences for children with visual impairments can foster long-term participation and positively influence their psychosocial development. Children with visual impairments experience more barriers to organized physical activity and, therefore, have fewer opportunities to

promote their physical fitness in this matter. With fewer learning opportunities, children may be unfamiliar with the possibilities of physical activity.

This study reveals a nuanced and dynamic relationship between the self-perceptions of children with visual impairments regarding motivation to participate in physical activity and the degree to which they believe they are capable of successfully engaging in physical activity. This interplay illustrates how identity shapes motivation: those who view themselves as capable of physical activity are more likely to pursue participation, while those with low perceived motor competence may feel less inclined or confident to engage. Furthermore, participants' decisions to be physically active are influenced not only by a myriad of factors including the significance they place on the outcomes of activity, health benefits, enjoyment, or social connection. Together, these elements form a motivational framework that either encourages or inhibits physical activity, highlighting the importance of addressing the multitude of variables to promote inclusive physical activity opportunities.

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Judo for Children and Young People with Visual Impairments and Blindness

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Keywords: Physical Education; Ground fighting; Visual Impairment; Teaching

This article aims to show how judo can be implemented in physical education classes with visually impaired and blind students. As usual in this field, the author followed the three-level classification of the United States Association for Blind Athletes (USABA). The USABA distinguishes between the groups B3 (vision between 20/200 and 20/599 after best correction), B2 (vision 20/200 and less after best correction), and B1 (blind). The exercises presented are designed to teach basic judo techniques and are specifically intended for ground fighting in PE. They can be used in elementary school as well as in middle and high school. Physical education with visually impaired children and young people is often

associated with a host of concerns: Is the risk of injury too great? Can movement be learned with a visual impairment? Do the different abilities of the students make meaningful school sports even possible? Or is this inevitably associated with disappointment and discrimination? This article aims to refute these doubts and allay fears. This is especially true for school sports, where competitive and regulated competition between students can trigger a valuable learning process that can have a positive impact on personal development.

Fighting in Physical Education

When this article refers to *ground fighting*, it means the physical and combative confrontation between two people. This definition can be further specified. While *roughhousing* is a form of physical combat that is playful and fair, athletic *fighting* is defined by agreed rules and rituals as well as the use of fighting techniques.

Furthermore, the paradoxical relationship of conflict with others while simultaneously feeling responsibility and caring for them is symptomatic of fighting. Therefore, combatants regularly find themselves on a fine line between responsible, cultivated, and respectful fighting and the danger of treating their opponent purely objectively or instrumentally, or of behaving in an aggressive manner. All tasks should therefore be designed as partner tasks that open up

mutual opportunities for action for both the active partner (Tori) and the passive partner (Uke).

Advantages of Ground Fighting

Fighting can be categorized according to the distance between the fighters and the use of weapons. In terms of the distance between the fighters, a distinction can be made between contact and distance martial arts. Contact martial arts, which are the focus of this article, are characterized by the fact that the fighters are in continuous direct physical contact with each other. This category of combat has at least three inherent characteristics that are of far-reaching importance for physical education, especially with regard to sports with visually impaired students.

Firstly, dialogue is central to fighting with physical contact. The movement dialogue in contact martial arts is expressed in the fact that at all times, actions are performed with the participation of the other person and have an effect on the other person. Such an intentionally directed, constant awareness of the opponent takes place in a reciprocal exchange of questions and answers in movement. The fundamental direct reference to the opponent's behavior is not only necessary in order to anticipate the other's movements – and thus their attack and defense behavior. The resistance of the other is also needed in order to obtain orientation information about one's own position in space.

Secondly, contact fighting requires equal concentration on several senses. The local senses related to the body play a particularly important role. These include the perception of touch, muscle tension (kinesthesia, pressure, and tension), movement, and balance and proprioception (the weight of the other person when throwing and ground fighting). With regard to PE with visually impaired students, this aspect should be emphasized, as contact combat sports are not characterized by large-scale orientation skills and the ability to see does not function as a central sensory perception when fighting. In this sense, fighting can be seen as an opportunity to move away from the 'deficit perspective' of not being able to see and to experience the concentration on other sensory perceptions, especially tactile-kinesthetic perception, as *positive* and *enriching*.

Finally, special attention must be paid to safety aspects when fighting in school sports. In contact martial arts, the risk of injury is lower than in distance martial arts due to the prohibition of punches and kicks (see Figure 1). Restricting fighting to the ground reduces the risk of uncontrolled falls, which prevents injuries.

Fighting in an Educational Context

When observing children and young people playing on the playground, in the gym, or in other places, it becomes apparent that they sometimes romp around wildly with each other and test their strength. Fighting is, so to speak, true to life

and therefore educationally relevant. In an educational context, it is essential that students establish rules and set boundaries for combative confrontation. In this concept, aggression should be channeled into regulated paths; emotions should be perceived and controlled. But mutual understanding in fighting involves more than just addressing aggression and violence and defining boundaries. The combination of competition and cooperation that is typical of fighting also requires and promotes the development of social skills. On the one hand, this requires dealing with victory and defeat. On the other hand, treating your opponent responsibly is a prerequisite for successful fighting and learning.

Therefore, developing a sense of responsibility and trust is fundamental to fighting. Appreciation, respect, and empathy towards one's partner are essential. To achieve this, however, it is first important to overcome inhibitions about physical contact. Furthermore, constant contact with the other person allows one to become aware of one's own body and facilitates orientation. As already mentioned, kinesthetic, tactile, and vestibular perceptions complement the preferred sensory reception via the eyes and ears. Training in movement anticipation and the possible disappointment of this anticipation means that fighters are constantly confronted with movement problems and thus gain new experiences.

After all, the outcome of a fight is usually uncertain. The opponents take a risk and test their limits. In doing so, sensing the strength of the other leads to an

increasing awareness of one's own strength. Taking risks in fighting has immediate, tangible consequences that are fundamental to the excitement and tension of combat. In order to maintain the open outcome of the fight and ensure that the opponents take risks, it is necessary to constantly search for solutions to movement problems that arise, for different partners to fight each other, and to further develop and differentiate existing skills and abilities. As mentioned above, Judo is a sport with few barriers for blind and visually impaired people because the importance of sight is limited by constant physical contact. Kinesthetic perception of forces and balance, rather than sight, plays a significant role and is also relevant for everyday activities.

Collection of Tasks

The following tasks deal with combative confrontation, with the lesson plan leading from playful roughhousing to competition-oriented fighting.

Establishing Physical Contact and Trust

In order to address fighting, it is advisable to first conduct preparatory games and exercises that serve to reduce inhibitions about physical contact and build mutual trust. Specific goals are for students to be mindful and considerate in direct physical contact with their partner, to allow touching, to develop cooperative behavior, and to sensitize their perception.

Group uprising. The students form small groups and try to get up from a sitting position together. They stand with their backs to each other and hook their arms together. First, two students should always get together and try to stand up together. Then the students get together in groups of three, four, or even five. This task can also be implemented as a competition, with the largest group that stands up together winning.

Vampire dance. All students move around in a limited space with their eyes closed and their arms stretched out in front of them. Among them is a vampire, who has been secretly chosen by the game leader. If you encounter another player, you place your hands together. If nothing happens, you turn away and continue walking. However, if you catch the vampire, they will let out a loud scream when you touch their hand. By touching the vampire, you now become a vampire yourself. Only when you meet another vampire are you redeemed.

Small and large pendulum. Two students stand facing each other in a step position. Between them is another student who falls forward and backward (body tension), possibly with their eyes closed. They are caught by the other players with their arms stretched forward and gently pushed away again. If the exercise takes place in a circle, 6-10 students should stand in a tight circle, shoulder to shoulder. The person who is falling stands in the middle.

While the introductory exercises serve to help the students warm up with each other and learn the importance of treating each other with consideration, the following exercises focus on increasing the intensity of physical contact and exploring the use of physical strength and finding a stable balance in a playful and exploratory way.

Becoming Aware of physical Strength and Balance through the Resistance of Others

The following tasks are designed to help students feel and assess their own physical strength through the resistance of their partner. In addition, they test their own balance as well as that of their partner and explore its limits. This aspect is particularly important for visually impaired students. Direct contact with their partner and the limited space for movement in judo offer security and orientation. The resistance of the other person is immediately tangible and provides support.

Circle drawing. Hold hands and form a circle together. On command, everyone tries to make the circle bigger. Try to hold on to the hands of your teammates next to you for as long as possible. The two teammates whose circle breaks first are eliminated, and the game starts again. The eliminated players can form a new circle.

Variation: Play with your eyes closed. Try to pay attention to how your fellow players react to your movements.

Crossing the line. Stand facing your partner at an equal distance from a line. Hold hands and try to pull each other over the line between you. For blind participants, a magic string (with bells) can be stretched between the students or tactile markers can be placed on the floor (e.g., several jump ropes next to each other).

Back push. Sit with your back against your partner's back. You are sitting in the middle of a mat (i.e., on the seam between two mats that have been placed together). When an acoustic signal sounds, you try to push each other backwards (maintaining constant back contact!) off the mat. The winner receives one point, and the game starts again.

Measuring and Communicating with Each Other in Physical Confrontation

Once the students have tested their strength in the previous tasks, the next step focuses on combative confrontation. Due to the direct combative confrontation between the students and the highly competitive nature of the tasks, it is necessary to establish clear rules within which the wrestling may take place. The rules should be developed and agreed upon together with the students based on their initial experiences in the previous game formats. The use of a rules poster has proven to be effective for this purpose (see Figure 1).

In addition, stop signals should be agreed upon. A signal (clapping on the mat or on the partner) helps the students to end the fight immediately. Another

signal (shout, whistle, gong, etc.) is reserved for the teacher and ends all fighting when it sounds. The command *"Freeze"* can be used to pause situations instantly, allowing students to reflect more effectively on specific moments.

Figure 1

Rule Poster

Pirates. In the middle of a mat field lies a soft floor (the pirate raft). Imagine you are a pirate and the ship you were on with your comrades has just sunk. You and the other pirates have just managed to save yourselves by climbing onto a raft. However, the raft is in danger of sinking under the weight of the pirates. The raft can

only carry one person. Since you don't want to be eaten by sharks, you must try to push the others into the water (the mat field around the soft floor).

However, you can never stand up, otherwise you will immediately slip and fall into the water. Once a pirate has fallen into the water (e.g., if any part of their body touches the mat field), it is impossible for them to get back onto the raft. However, the pirates who have fallen in can try to cling to the raft and pull the others on the raft into the water as well. Try to be the last one left on the raft without falling into the water.

Practical tip: The teacher should be very attentive, as there is a high risk of uncontrolled collisions. They must ensure that no student stands up or pushes their classmates off the mat using inappropriate physical force. They should have the option of freezing the situation. Blind students should also have a guardian angel function to avoid violent collisions and prevent those students from being pushed or pulled from different sides at the same time.

Shoulders and my mat. Sit opposite your partner on a mat in a heel seat. Hold each other's forearms, upper arms, or shoulders. When you hear an acoustic signal, start wrestling with each other. Try to push, shove, or pull your partner onto the floor with their back.

Variation: Try to push your opponent off the mat so that a part of their body touches the floor (use gym mats rather than thick mats such as soft flooring).

Learn the Principles of Ground Fighting and Explore Individually Functional Forms of Movement

In addition, the combative confrontation between the students should be initiated in a more targeted manner with regard to typical ground fighting techniques. Whereas the aim up to now has been to force the opponent to the ground or onto their shoulders in some way – in accordance with the established rules – the focus should now be on working with the students to identify the options available to the combatants for permanently immobilizing the other (on the ground) or at least putting them in an unfavorable position. To this end, students should work together to figure out how to hold the other person down, which parts of the body to pull or apply pressure to, and which movements require more or less effort. In order to limit the search space and thus the range of possible movement solutions specific to judo, three typical judo situations are chosen as a starting point.

(a) Your partner lies down on a mat with their arms at their sides and their back flat. Now try to lie on top of your partner so that they cannot sit up. You are not allowed to touch your partner.

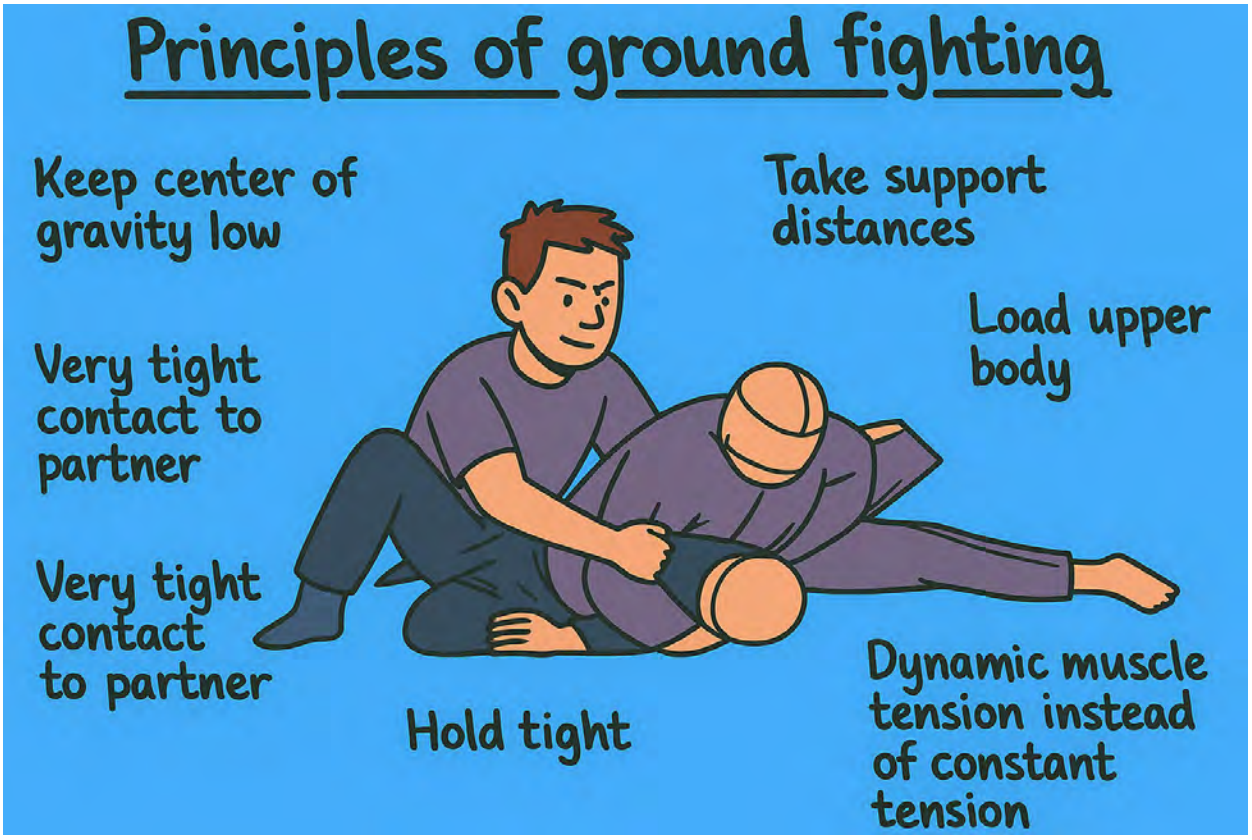
(b) Your partner is lying on their back. This time, they must free themselves from the supine position. You, on the other hand, must continue to keep your partner's back on the mat and can hold their arms, legs, and shoulders to do so.

(c) Your partner supports themselves on their feet, knees, and hands or forearms so that their body forms a seat (bench) and they are in a turtle-like position. Your task is to turn the turtle onto its back.

Playful experimentation is also the focus of these games and exercises. Long verbal explanations, preliminary exercises, and error corrections should take a back seat so that individual solutions can be found. Experience has shown that students learn the following principles in these games and exercises, which can be recorded on a learning poster to reinforce the results (see Figure 2):

Figure 2

Principles of Ground Fighting



- I am harder to turn when I am as close to the ground as possible (*keep your center of gravity low*).
- I am even harder to turn when I spread my body surface as wide as possible, distributing it across several points of support (*widening my body surface*).
- I must not only pay attention to setting my own points of support, but also to blocking or removing those of my opponent (*taking away support options*).
- Very close physical contact with as little space as possible between me and my partner plays an important role in ground fighting, so that freedom of movement—i.e., the possibilities for the person being held to free themselves from the hold—is kept to a minimum (*very close contact with partner*).
- I must try to put pressure on my partner's torso rather than their extremities. My own body weight exerts pressure on my partner's chest, which is uncomfortable for the person being held and requires strength to fight against the resistance (*putting pressure on the upper body*).
- Controlling the arms and legs or maintaining a safe distance from the partner's legs limits their ability to free themselves. My goal is to immobilize my partner as much as possible while offering few points of attack (*controlling the extremities as much as possible*).
- I can only control my partner if I hold them with real force (*hold them tight*).

- I have to hold my partner in a variable and reactive manner, because although I am working against my partner's resistance, I also have to remain mobile in order to be able to react to their attempts to break free (*dynamic muscle tension instead of constant cramping*).

Learning Basic Ground Fighting techniques from Judo

The principles developed for controlling the opponent on the ground and, conversely, for freeing oneself, should now be embedded in judo-specific rules and tested for optimization. To this end, basic rules from judo are introduced (see Figure 3), which limit the range of possible movement solutions in the target sport accordingly. In most cases, students are very interested in fighting according to official rules and express an early desire to practice judo properly. The judo-specific rules that result from the regulations can be easily worked out in a student presentation. Experience shows that students were often particularly successful when they managed to pin their partner down with their own body weight and at the same time put them in a kind of "headlock." The solutions used by these students were similar to the *kesa-gatame* (see Figure 4), which is one of the most successful holds in judo because it allows the partner to be pinned particularly well in a supine position without being able to twist out of the hold or lift both shoulders off the ground, at least when certain execution criteria are observed.

When applying this hold, students must ensure that

a) ...they do not shift too much weight onto their partner's upper body, so that their partner cannot roll them over onto their other side;

b) ...they bring their hips close to their partner's upper body (near their armpit) so that they cannot twist out of the hold;

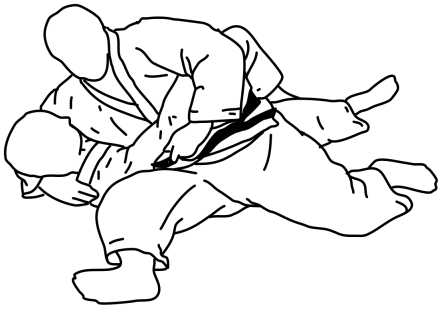
c) ...they spread their legs wide apart so that they can stabilize themselves at the front and back.

Figure 3

Judo-Specific Rule for Ground Fighting

Figure 4

Kesa-gatame



Since the students have already learned that immobilizing the upper body and applying *a headlock* are useful solutions, they should further optimize these techniques in the next task.

Breaking free. One partner lies on their back. Together, think about how best to hold them in this position for *at least 15 seconds* without them being able to free themselves from the supine position. Once you think you have found a firm grip, the person being held tries to free themselves when given the signal. Try out your holding technique several times, switch roles and partners, and decide on a solution that you find particularly effective.

If the students do not sufficiently recognize the functional relationships described above (a-c) in this task, it is helpful to narrow down the search area by using difference tasks. To do this, the students should consciously experiment with the position of the upper body, hips, and legs.

Kesa-gatame (*sash hold*). In Kesa-gatame, you try to hold your partner on their back in such a way that you lie across them like a sash, from their shoulder to their hip. Check which variations offer the best control for the person holding and which ones give the person being held the least opportunity to break free:

- Vary your upper body position: Try to vary the body weight with which you press down on your partner's upper body by lying more or less on top of them with your upper body.
- Vary your hip position: Lie on top of your partner so that you are putting weight on their upper body, but your hips are at different distances from their torso. Which distance is best?
- Vary your leg position: Alternate between legs wide apart, shoulder-width apart, and close together. Which position is the most stable?

Learning how to apply holds should also be accompanied by learning how to escape from them. Even though kesa-gatame is a relatively secure hold, there are still ways to escape from it. To help students reliably discover these solutions for themselves, here are some proven tips for escaping.

Tips for escaping from Kesa-gatame.

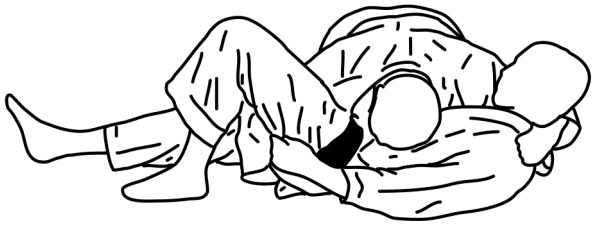
- Unbalance your partner by turning abruptly from one side to the other. First feint in one direction and then turn dynamically in the other.

- Try to slide your leg under your partner's rear leg so that it rests on your thigh. Wrap your arms around your partner's waist. Now turn dynamically to the free side of your body and use your arms to pull your partner's torso to the free side of your body so that you can roll over your partner.
- Try to free your arm from the grip and press your elbow against your partner's thigh to create a gap between you. As you do this, try to turn onto your side (towards your partner) onto your stomach.
- Try to clamp your partner's rear leg with your legs.

In addition to Kesa-gatame, there are other holds and corresponding releases. The larger the repertoire of holds and release techniques, the more complex the ground fighting becomes. Experience has shown that *Yoko-shiho-gatame* is also well suited for teaching in schools (see Figure 5) because it does not place too many demands on the fighters. The didactic derivation of other holds cannot be covered in this article but is methodologically based on the exemplary presentation of Kasa-gatame.

Figure 5

Yoko-shiho-gatame



Applying What You Have Learned in Ground Fighting in the Colosseum

Finally, what has been learned can be applied in a competition or presented as a ground fighting performance (kata). If ground fighting is held as kata, two (maximum four) students should always create a performance together, which is limited by time constraints or a specification regarding the number of elements (e.g., number of holds). The students can determine the tempo, intensity, and musical accompaniment. Grading can be based on the difficulty and coherence of the idea, the relationship between partners, and the quality of the movements. The grading criteria should be determined together with the students.

The competition can also be used as a motivational organizational tool. A large mat area is set up in the hall. The long sides of four thick mats lying on the floor form a rectangle, which is lined with thin mats (fighting area) on the inside.

This structure represents the Roman Colosseum with spectator stands (soft floors). Outside the Colosseum, competition areas marked with Roman towns are set up. At least four students are assigned to a competition area (town) according to size and weight. There is a welcoming ceremony before each fight. Two students always fight each other, with a third acting as referee. The teacher explains the rules and is also responsible for the duration of the fights (approx. 30-60 seconds). On a competition area, each student fights against everyone else and counts the points scored. At the end, the student with the most points is allowed into the Colosseum, where they compete against the other winners.

Colosseum fighting arena. Try to push your opponent's shoulders to the ground and hold them there in a supine position, within the agreed competition rules. Make sure that you do not stand up and that you have contact with your opponent from the start (e.g., by grabbing their forearms). You receive three points for a win and one point for a draw.

Instructions for Organizing Lessons

Finally, here are some general tips for fighting in PE with visually impaired students:

- It is advisable to wear tear-resistant clothing. It is also recommended to use long sleeves and sweatpants as sportswear to avoid abrasions as much as possible.

- In PE, there should also be a ritual for fighting that is performed by all participants at the beginning and end of the lesson (typically a rest period followed by a bow in a circle). Such rituals structure the lessons and are to be understood as an expression of mutual respect. A common ritual (bow, high five, etc.) should also be established before and after games and exercises, as performing it symbolizes concentration and recognition on the part of the opponents.
- When planning the lesson series, the teacher must take into account any medical conditions the students may have. In case of doubt, the ophthalmologist should be consulted in advance to clarify any possible restrictions, as the intense physical exertion typical of combat sports can cause medical conditions to worsen.

Conclusion

The article discusses the pedagogical potential of judo-based ground fighting in physical education for students with visual impairments. Emphasizing its tactile and proprioceptive nature, the author argues that judo provides an inclusive framework where vision is not a prerequisite for competence. The instructional progression moves from cooperative contact games to structured partner exercises, fostering body awareness, trust, and controlled physical interaction. Through guided experimentation, learners discover key biomechanical principles such as

weight distribution, low center of gravity, and dynamic pressure. These insights are subsequently formalized into standardized techniques like kesa-gatame. The approach balances safety with autonomy through clear rules and mutual responsibility, positioning judo as both a motor and socio-emotional learning medium rather than a purely combative activity.

VIDBE-Q 2026 Convention Issue

The intended purpose of the Spring 2026 convention issue is to provide manuscripts aimed at practitioners about presenter contributions to the CEC 2026 program and work related to the field of visual impairments and deafblindness. This issue will allow those who were unable to attend your session to know more about your work.

Guidelines:

-2,000 - 5,000 Words
-Tables and figures should have a text description & title (APA 7th edition)
- Alt text included for images
-References
-APA formatting (7th Edition)
-12 point, Times New Roman or Arial font
-Author information for title: Name, affiliation, highest degree earned, and email address
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Email your manuscript submission to Kathleen.Farrand@asu.edu.

Deadline for submission: April 10, 2026

From Research to Practice: MOVE AS YOU ARE (Erasmus+) — A Two-Hour School-Based Proposal Play and Motor Fairy Tales for Including a Student with Visual Impairment

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Abstract

This practitioner article presents a replicable two-hour, school-based sequence for a general physical education class that includes one student with visual impairment (VI). The proposal was developed within the Erasmus+ project MOVE AS YOU ARE, which provides two open, multilingual resources—a Best-Practice Booklet and a Massive Open Online Course (MOOC) with a final self-assessment quiz—to help teachers, teachers of students with visual impairments (TSVIs), coaches, and therapists translate evidence into everyday instruction. A distinctive feature of the project is the use of play and motor fairy tales as organizing frameworks that braid fundamental movement skills (FMS) into meaningful, motivating, and cooperative episodes. The two-hour unit is intentionally simple: hour 1 focuses on "operational

empathy"—learning to guide and be guided, establishing shared cues, and practicing safety routines; hour 2 is a motor fairy tale in which all students participate at their own best level with peer guides rotating to support the student with VI. The article explains the rationale for each step, describes teacher language, safety and role routines, and success criteria, and concludes with ready-to-use tools (action steps, a planning sheet to design a motor fairy tale, and a brief Lieberman/Brian Inclusion for Physical Education (LIRSPE) checklist).

Keywords: visual impairment; adapted physical education; fundamental movement skills; play; motor fairy tale; inclusion; Massive Open Online Course (MOOC); elementary school.

Background

Children with visual impairments (VI) consistently demonstrate lower levels of fundamental movement skills (FMS) compared with sighted peers, with consequences for participation, fitness, and self-efficacy. Cross-sectional studies have shown marked motor delays in both locomotor and object control skills (Brian et al., 2018; Castiglioni et al., 2025; Houwen et al., 2009). Systematic reviews confirm reduced physical activity levels and fitness outcomes in school-age youth with VI (Haegele & Porretta, 2015; Lieberman & McHugh, 2010). Importantly, these motor delays are considered modifiable with explicit instruction, adapted environments, and systematic practice (Brian et al., 2018; Haegele & Porretta, 2015). However, general PE teachers frequently report insufficient preparation for working with students with disabilities, and preservice training specific to VI remains scarce; even experienced educators identify students with VI as among the most challenging to teach without targeted guidance (Lieberman et al., 2022; Lieberman et al., 2017; Lirgg et al., 2017; Wilson et al., 2022). To support practice in schools, monitoring inclusive teaching with a short observation tool such as the Lieberman/Brian Inclusion Rating Scale for Physical Education (LIRSPE) can foster reflection and improvement across lessons (Lieberman et al., 2017). Against this backdrop, resources such as Camp Abilities and the Gross Motor Development Curriculum for Children with Visual Impairments (Lieberman

& Haibach, 2016) have established evidence-based strategies (pre-teaching, tactile modeling, task analysis, and consistent verbal/auditory cueing) (Lieberman et al., 2017). The MOVE AS YOU ARE project builds on this tradition while adding a distinctive emphasis on play and motor fairy tales as organizing principles for instruction (MOVE AS YOU ARE Consortium, 2024a; MOVE AS YOU ARE Consortium, n.d.; MOVE AS YOU ARE Consortium, 2024b).

2The Erasmus+ Project MOVE AS YOU ARE—Aims, Partners, Outputs, and Method

MOVE AS YOU ARE is co-funded by the European Union (Erasmus+ Sport; project code 101133647), launched in 2024 for two years. The aim is to equip general PE teachers, TSVIs, coaches, and therapists with practical tools to initiate children with VI into movement and sport safely and competently. The consortium integrates nonprofit, municipal, academic, and project-management expertise: Real Eyes Sport (Italy) is a nonprofit that coordinates the project and leads field implementation and dissemination; the Municipality of Vila Nova de Famalicão (Portugal) authored the adapted swimming teaching component; the APALab—National and Kapodistrian University of Athens (Greece) provides research and training expertise; and Euphoria Net (Italy) supports project management and dissemination.

Two open outputs support day-to-day implementation: (1) a Best-Practice Booklet (environmental setup, safety, low-cost equipment, teaching method, guiding methods, examples of adapted games and motor fairy tales) (MOVE AS YOU ARE Consortium, 2024a); (2) a MOOC that presents practical video demonstrations of the teaching and guiding methods described above, adds sport-specific units (athletics and swimming), and ends with a final quiz that helps educators plan next steps (MOVE AS YOU ARE Consortium, n.d.).
All resources are available online in multiple languages; the Booklet is freely downloadable.

Development of the project outputs triangulated research and guidelines, established references such as Camp Abilities (Camp Abilities, n.d.) and Gross Motor Development Curriculum for Children with Visual Impairments (Lieberman & Haibach, 2016), and the partners' field experience—including Real Eyes Sport's yearly sport camps (~80 participants) and ongoing multi-city programs—so that evidence could be translated into replicable procedures for schools and rehabilitation settings.

A distinctive feature of MOVE AS YOU ARE is the focus on play and the motor fairy tale. As described in the Booklet/MOOC, a motor fairy tale is a sequence of short games tied together by a story that assigns roles, purposes, and pacing. It supports inclusion because everyone pursues the same narrative goal

while achieving it in their own way, with adaptations that match individual abilities; it also stimulates problem solving, cooperation, and motivation. See MOVE AS YOU ARE Booklet/MOOC for the dedicated section.

Aim of the Article

This article provides a structured, classroom-focused two-hour sequence for a mixed-ability PE class that includes one student with VI. The plan is intended to be feasible within a normal timetable and usable by a general PE teacher who has reviewed, even briefly, the MOVE AS YOU ARE Booklet and MOOC (MOVE AS YOU ARE Consortium, 2024a; MOVE AS YOU ARE Consortium, 2024b) or, at minimum, is familiar with the basics: teaching methods such as concise verbalization and tactile modeling, guiding methods and setup of perimeters and safe zones.

Research to Practice: A Two-Hour School-Based Proposal

We assume a sighted class with one student with VI in the first weeks of the school year. The dual objective is (a) to build an inclusive climate and a shared vocabulary of roles and safety cues (Hour 1), and (b) to deliver a narrative-play experience that weaves FMS, cooperation, and enjoyment (Hour 2). This approach aims to support the student with VI without reducing challenge for sighted peers.

4.1 Hour 1—60 minutes: "In the Other's Shoes" (Operational Empathy and Safe Movement)

Open with a brief talk to frame blindness/low vision in sport: students with VI can participate fully with adaptations (environmental setup, clear cues, guiding options, adapted equipment). Then conduct a boundary walk to identify safe zones, exits, and potential hazards (e.g., pillars, benches).

Introduce the four shared safety/guide cues (posted on the wall as a cue-card): “SPACE CHECK!” (before moving or guiding, make sure backpacks/obstacles are removed, lanes are free, and the perimeter is safe), “READY-GO!” (warn the partner that the group is about to start), “SLOW!” (verbally signal to reduce speed), “STOP!” (immediate, safe stop). Keep wording short and always the same; rehearse these cues before every activity.

Exercise 1—Paired work with a short tether.

Organize dyads and provide each pair with a short tether; one partner is blindfolded to simulate blindness and the other guides. Partners alternate roles. Begin by walking the gym perimeter and a four-cone slalom along the long side. The guide speaks before acting (e.g., “In three steps we turn left… SLOW… STOP!”) and both partners coordinate arm-swing for rhythm. Then repeat the pathway as a slow guided run. See the MOOC module for video demonstrations of these guiding techniques (MOVE AS YOU ARE Consortium, n.d.).

Exercise 2—Sound-orientation runs (no tether).

Over ~15 m, the blindfolded student moves independently while the guide calls from the finish line. The student orients using the guide's voice.

Exercise 3—Verbalization and tactile modeling.

In a large circle, the teacher verbalizes a simple warm-up (e.g., arm circles), while sighted peers help partners feel amplitude, posture, and rhythm by placing a hand on the scapula/upper arm (or using hand-under-hand with consent). See the Booklet and the MOOC module for demonstration videos (MOVE AS YOU ARE Consortium, 2024a; MOVE AS YOU ARE Consortium, n.d.).

Exercise 4—Frozen Witch (adapted).

One/two witches use a sound ball or claps; half the class is blindfolded and half serves as guides. Release occurs by passing under a teammate's legs. Boundaries are clear, no crowded sprints, and roles rotate. See the Booklet for a detailed description of the game.

Close with a brief debrief: "Which cue helped you most?" "When did you feel safe?" "What will you do better as a guide?"

Ethics note: Blindfold simulation is optional; obtain consent as required and screen for contraindications.

A step-by-step checklist for preparing and conducting Hour 1 is provided in Table 1.

Table 1

Pre-Lesson Action Steps (Checkbox List)

Done	Action step
☐	Perform a SPACE CHECK with the class (remove backpacks/obstacles; ensure free lanes).
☐	Mark perimeters and safe zones; set sound targets.
☐	Prepare equipment: sound balls, short tethers, cones, tactile spots/mats, high-contrast pinnies/tape, a bell.
☐	Post the cue-card with the four cues (SPACE CHECK / READY-GO / SLOW / STOP) at eye level, high contrast (tactile/Braille if available).
☐	Assign guide/runner roles and rehearse the guiding script (speak before acting; guiding methods; STOP rule).
☐	If helpful, prepare a simple tactile map of the gym for orientation.

4.2 Hour 2—60 minutes: The Motor Fairy Tale as an Instructional Framework

Hour 2 applies the skills learned in Hour 1 to a structured "motor fairy tale." A motor fairy tale is a sequence of short games tied together by a simple narrative; each episode highlights one or two movement goals and builds cooperation around a shared mission. A planning tool for designing your own fairy tale is provided in Table 2. The narrative provides purpose, roles, and pacing; organizes motor transitions; supports cue memory; and sustains motivation and cooperation. When

designing a motor fairy tale, plan the target fundamental movement skills and physical capacities (e.g., balance, speed), as well as socio-relational competences (e.g., cooperation, problem solving) you aim to improve; then select games to embed in a motivating narrative. Where disability is present, specify adaptations for each game segment to ensure participation and enjoyment. See also Giocofiaba as a narrative–play framework (Seclì & Farnese, 2008).

Table 2

Planning Tool for Motor Fairy Tales

Name of Motor Fairy Tale	
Setting	
Characters	
Learning Objectives	
Possible Transversal/ Interdisciplinary Objectives	
Equipment/Materials	
Space Used	
Estimated Duration	

Description	
Observations	
Variations	
Adaptations for Disability	

In Hour 2, classmates generally do not wear blindfolds. By this point, peers have already practiced guiding and safety language, so the student with VI can participate with rotating peer guides and adaptations. The rest of the class continues to be physically challenged because the narrative demands speed changes, problem solving, target accuracy, and shared roles. Now everyone plays at their best level.

If this is your first time organizing a motor fairy tale, you can reproduce the marine-themed example presented in the Booklet (inspired by the animated film "Finding Nemo"), structured into 7–9-minute episodes with short transitions to maintain attention and flow. Below we summarize the main games included in this fairy tale:

- **Barracuda.** Short, guided runs with a safe freeze on signal develop rhythm and controlled braking; guides verbalize in advance and offer an elbow hold if needed.

- **The Net**. Cooperative tag where tagged peers form a tactile net that progressively narrows space: focus on direction changes and spatial awareness.
- **Jellyfish**. A course of hoops and tactile spots to avoid obstacles, trains balance and precise foot placement with concise cues ("three small steps, turn, freeze").
- **Turtles**. A controlled cooperative carry (hands on shoulders/hips; no pulls on neck/head) develops strength-control, posture, and collaboration; partners alternate roles.
- **Escape from the Dentist**. A relay along a guided corridor ends with an underhand roll to a sound target, consolidating target accuracy and turn-taking/competition management.

Throughout, maintain the small, consistent set of SPACE CHECK / READY-GO / SLOW / STOP; avoid cue overload. Support children with low vision by increasing marker contrast and reducing background noise/visual clutter; for children with blindness, mark corridors with ropes/tactile mats and use tactile modeling in new/complex phases. Conclude with a debrief on safety, participation, and competence.

Monitoring, Safety, and Tools for Adoption

To document inclusion and progress toward autonomy, substitute generic activity metrics with the LIRSPE-Brief (Lieberman–Brian Inclusion Rating Scale for Physical Education), a short lesson-observation instrument aligned with the Camp Abilities/Gross Motor Development Curriculum for Children with Visual Impairments tradition (Lieberman et al., 2017).

Suggested LIRSPE-Brief items for each lesson: (1) warm-up with peers; (2) adapted speed/organization for safe participation (no crowded sprints); (3) differentiated instruction with tactile modeling when needed; (4) effective use of peer tutors/paraeducators (as facilitators, not substitutes for peers); (5) no elimination / minimal waiting lines; (6) variety of equipment (e.g., sound balls, tactile spots); (7) favorable auditory/visual environment (reduced clutter/noise); (8) final check for understanding (students can state when to use SPACE CHECK / READY-GO / SLOW / STOP). A brief observation tool adapted from the LIRSPE is provided in Table 3.

Table 3

LIRSPE-Brief (Lesson Observation)

Item	Rating (1–5)	Notes / Examples
Warm-up with peers (student with VI included from the start)	_____	
Adapted speed/organization for safe participation (no crowded sprints)	_____	
Differentiated instruction; tactile modeling used when needed	_____	
Effective use of peer tutors/paraeducators (as facilitators)	_____	
No elimination; minimal waiting lines/time-outs	_____	
Variety of equipment (e.g., sound balls, tactile spots)	_____	
Favorable auditory/visual environment (reduced clutter/noise)	_____	
Final check for understanding (cues: SPACE CHECK / READY-GO / SLOW / STOP)	_____	

Conclusions

MOVE AS YOU ARE provides a practical, open-access framework to begin inclusive PE and sport education for children with VI. The two-hour unit proposed

here shows how to develops a common safety language, guiding behaviors, mutual trust, and empathy (Hour 1) and how to uses a motor fairy tale structure to embed fundamental movement skills into cooperative, story-driven play (Hour 2).

Importantly, the approach is not equipment-heavy and does not depend on specialist facilities: it is meant for ordinary school gyms and playgrounds. The Booklet and MOOC are designed to help teachers, TSVIs, and therapists feel prepared and confident in starting this work, even if they have not previously taught a student with VI (MOVE AS YOU ARE Consortium, 2024a; MOVE AS YOU ARE Consortium, 2024b).

Conflicts of Interest

The authors coordinated the Erasmus+ project MOVE AS YOU ARE and co-authored its outputs (Booklet and MOOC) discussed in this article. The author reports no financial interest in these materials (they are freely available) and has no other relationships or activities that could appear to influence the work.

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