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Physical Education and sport for children with low vision or blindness

A resource for teachers, coaches, instructors and parents

About this resource

Guide Dogs believes that all people with low vision or blindness, including children, should have equal opportunity to achieve their goals and live the life of their choosing.

This resource aims to address some of the barriers preventing inclusion in Physical Education (PE) and sport for students with low vision or blindness by providing practical ideas and techniques to ensure PE classes facilitate meaningful and inclusive learning.

Low vision and blindness relates to any condition that causes limitations to one's eyes and functional vision. When working with a child with low vision or blindness, it's important to remember that they may have lower fitness levels, motor skills and often social skills [1]. This can result in lower mental and physical health when compared to their fully sighted peers. It is essential that students with low vision or blindness are actively involved in PE and sport programs to learn lifelong skills to maintain their health. Each student will have different preferences based on their lived experience, abilities and limitations. This often requires adaptations to programs and specialised equipment to make it accessible and they will require input into the programs designed for them [2][3]. It has been shown that a direct response by educators and instructors can improve the physical activity and skill levels of students and lead to positive changes [4].

Benefits of inclusion

Physical education is important for health and wellbeing. It is enjoyable, builds self-confidence and improves one's health and fitness [5]. Students with low vision or blindness are more likely to experience significant barriers when engaging in PE and physical activity [6].

These include:

- lack of early experiences in PE;
- limited opportunities to participate in sporting programs and competition;
- lack of access to facilities and equipment that supports their needs; and
- inadequate training of teachers and coaches.

Studies suggest that lack of motor skill development due to limitations in vision directly impacts the student's self-efficacy and independence; both contributing to further avoidance of participation in sport and PE [7]. Schools and community groups can enhance positive experiences in PE and sport to contribute to personal growth by encouraging physical and social development.

Physical development requires interaction with the environment, and as observation and exploration of the environment for a student with low vision or blindness is limited, this leads to missed physical interactions and hindrance of independence [8]. When students have a carer or educator who guides them systematically through the environment, this exploration builds familiarity and increases engagement and participation in educative settings [2][8].

Students with low vision or blindness are often prone to social isolation and exclusion due to their inability to interpret social constructs and cues, which affects their interactions with peers

and society. When students are supported, there is a direct increase in interactions with peers, social skills, language skills and effective communication abilities: all contributing to an increase in social inclusion and development [9][10][11].

The benefits of inclusion can also result in positive outcomes for teachers, families and students without disability, not just those with a disability. PE classes provide all students with opportunities to develop confidence, motivation and social skills while promoting a healthy lifestyle [2].

Careful consideration given to the planning process of PE and sport activities, in addition to the use of specific instructional techniques and strategies, will lead to a more successful experience for students and instructors alike [12].

Program considerations

When planning units of work, the first aspect to consider is understanding the student's level of vision and assessing their skills. Once this is established, the required pre- requisite skills can be identified. Further planning will establish what equipment, rules and environmental and boundary changes need to be implemented. Modifications and adaptations to rules, boundaries and equipment when planning units of work and individual lessons will allow for active participation and inclusion in PE and sport. Adaptations can allow students to engage in activities and develop key skills with their cohort and not be segregated from their peers [13].

Support for the student will then include the teacher using specific instructional strategies and techniques with the assistance of support staff and peer tutors.

Assessment

Start by assessing the student's current skills and functional ability to establish a baseline skill level before planning any modifications [14].

Understand the nature of the vision condition and its functional implications / amount of residual vision to assist in planning inclusive lessons.

Ask students what they are able to see and which objects and conditions present problems, what sports they like, preferred modifications and teaching style.

Talk to the student's Itinerant Support Teacher (Vision) or Orientation and Mobility Specialist.

Find out if the student has any other disabilities [1].

When completing formal assessments, allow extra time to complete tasks and confirm learning by asking questions to check knowledge of key concepts and ideas. This is an inclusive technique suitable for the whole class [15].

Pre-requisite skills

Students with low vision or blindness may have decreased opportunities for incidental learning, unlike sighted students who have the opportunity to learn skills through observation. Support may be required to foster confidence with basic skills such as running, jumping and throwing a ball, before progressing to more sport- specific skills, as students with low vision or blindness have decreased opportunity for incidental learning [16].

Students will take longer to learn skills, so units of work can be introduced before it occurs with peers. Contents could include court dimensions, game area, scoring, terminology, rules and strategies.

It may be an option to teach these skills prior to the lesson so as not to remove the student from class, either before or after school or in free time. This will support participation in lessons.

Equipment

Common modifications include;

- changing the height of goals / targets, have bigger targets;
- ball adaptation: deflate to make impact softer or to slow it down, use a balloon ball, use a softer ball, a bright colour;
- use of guide ropes or running tethers to run [17]; or
- use tees to hit off or bigger bats.

Using sound clues;

- enables preparation for various actions in sporting events;
- balls can have a sound added to enable the ball to be tracked [18]; and
- sound sources behind targets and goals such as portable speakers, a wireless doorbell pressed while aiming or they can be struck with a bat / stick to make a noise. Clapping is a simple sound source to use which requires no equipment

This enables participation in the chosen activity, promotes inclusion and assists in the development of fundamental movement skills [19].

Environment and boundaries

The nature of the student's vision condition will inform what adaptations to make to the environment such as:

- increase or decrease the size of the court or field;
- limit the play area for the student;
- use of tactile boundaries; bright cones or tape for boundaries and markers;
- have guides and spotters in key areas to redirect play;
- use of a whiteboard or tactile map to demonstrate areas/courts/positions;

- check lighting in indoor areas - preference could be for dim or well lit;
- outdoors be aware of glare / cloud cover and sun direction; or
- allow exploration of the lesson area, inform of any changes, remove hazards and keep the area uncluttered [20].

Rules

Adapting the rules is an easy way to promote inclusion. For example:

- allow for extra time;
- take extra steps or bounces;
- allow more space between offence and defence players; or
- use of different equipment such as a tee for hitting off.

Find a balance between making the game accessible and still fulfilling for students with sight [14][16]. The adapted rules should be seen as a general progression / approach for the whole class, and not directly linked to the person with a disability [21].

Support staff

Seek support from:

- Itinerant Support Teacher (Vision)
- Teachers' Aides
- Other staff members
- Orientation and Mobility Specialist

Ensure any support staff that are assisting in PE are trained to support the student in PE classes and are aware of your goals for the class and what to expect from the student. Accompaniment by an aide can assist in ensuring that students receive support in relation to environment exploration and motor skills development [10].

This in turn leads to an increase in social interactions with peers, social skills and effective communication abilities: all leading to social inclusion and development [9]. Determine an appropriate level of assistance that suits the individual student's needs [12].

Peer tutors

Using peer tutors to facilitate inclusion in sport and PE programs can lead to positive results [1][22].

This can be effective in:

- promoting social opportunities for all students involved;
- allowing the teacher to spend time with other students in the class; and
- improving physical activity levels and skills in the student with low vision or blindness.

Providing tutoring experiences for as many peers as possible and rotating the peer tutors:

- prevents the tutors from tiring;
- ensures tutors have time to participate independently; and provides a wider range of social interactions for the student with low vision or blindness. Start with friends first, then move to less familiar peers later [24].

Provide training for the tutors to make the peer tutor program successful. A training program will:

- help tutors gain greater understanding and empathy for students with low vision or blindness;
- equip them with the formal skills required to assist; and
- teach them how to use the instructional techniques outlined in this guide.

Rewarding the tutors will:

- make them feel valued for their contribution; and
- maintain their motivation by using a formalised reward system [23].

Instructional strategies and techniques

After considering aspects impacting the program itself, use of specific strategies and techniques to improve motor skills may assist with an increase in physical performance and emotional well-being. Traditionally people learn new skills via a combination of visual and verbal instruction. Visual demonstration and instruction are often ineffective when working with students with low vision or blindness, so alternative methods of instruction need to be employed [25][26].

When introducing new skills to all students in the class, engage the student with low vision or blindness in the demonstration. Use detailed verbal instructions, physical guidance or modelling with the student when demonstrating.

Direct verbal instruction

Skills being taught can be accurately verbalised and broken down into each movement phase to promote optimal understanding. By incorporating specific descriptive verbal instructions, it can assist students with low vision or blindness to understand the components of the activity/skill while remaining inclusive of all participants.

- Verbalise each movement as you show it in body-oriented language.
- General language with terms such as “here” and “like this” should be avoided and instead use accurate and precise language that explains the skill.
- Use directional words and landmarks in the playing area to direct your student. For example “walk straight ahead to the door, do a quarter turn toward the window on your left”.

- Using analogies can assist. For example “to throw a javelin, the arm makes a similar motion to an overarm throw” [27].

Physical guidance

On occasion, physical guidance may be required to teach a new skill.

- This requires adjusting the student’s position through physical contact to their body / limbs to create the correct stance or position.
- Always ask permission and give verbal notice before contacting a student.
- Physical guidance should be removed as soon as possible and replaced with detailed verbal instructions [16].

Physical modelling

At times verbal instructions can be accompanied by physical modelling.

- This is similar to a sighted person observing a demonstration
- The student with low vision or blindness will need to place his or her hands on the hands of the person giving the demonstration (hand under hand instruction) with a teacher or peer.
- This allows the student to feel the form of movement that the teacher is describing verbally [16].

Guidance strategies

1. Holding the elbow of a guide

2. Using a cane or pole horizontally

3. Reciprocal arm swing using two poles

4. Guide ropes with plastic tubing to hold on to with knots indicating ends

5. Running tethers

6. Using a caller to provide verbal guidance

Case Study examples

Case study one – student with blindness

Andrew is 13 years old and has no functional vision. Andrew is consulted before the lesson to discuss how he can be meaningfully included. Success in PE classes relies on very clear, direct and descriptive verbal instructions and feeling encouraged by his peers and teacher. When planning for a unit on basketball, Andrew's PE teacher considered a number of factors.

Teaching style / instruction:

Andrew's teacher will use descriptive language when giving instructions, and verbal direction and physical modelling to demonstrate techniques.

Prerequisite skills:

The teacher used a combination of detailed verbal instruction and physical modelling to teach Andrew to dribble and shoot for the basket. Time was allocated for this before class. A ball was also sent home with Andrew for practice.

Rules:

When it came time to play, Andrew was still not confident with dribbling, so the rules were adjusted, allowing him to take a maximum of three steps with the ball before stopping to bounce the ball once. All players were required to call Andrew's name and use bounce passes so he could better track the ball. Peer tutors took turns providing physical guidance on the court.

Equipment:

The school purchased an audible bell basketball that increased Andrew's awareness of ball movement.

Environment:

Long strips of carpet were laid around the boundary of the court, allowing Andrew to feel when he stepped out of bounds. Wireless doorbells were placed at the top of the backboards to provide audio targets to aim for when Andrew was shooting for the basket.

Assessment:

The PE teacher asked Andrew to demonstrate how to dribble, pass, catch, and shoot a basketball. Andrew has difficulty bouncing the ball consecutively and is unfamiliar with how to shoot. He was able to complete a bounce pass with confidence but had difficulty tracking the ball when it was passed to him.

Safety / risk management:

Ensure Andrew is comfortable with the skills and gameplay required in basketball. He can be partnered with a buddy to assist him to move around the court using physical guidance. The rules and equipment modifications outlined above will reduce the risk of injury.

Case study two – student with low vision

Josh is in Year 10. He had an accident that permanently damaged his vision. Josh's success in PE relies on clear and detailed verbal instructions and bright, high contrast colours of equipment. When planning a T ball lesson, Josh's teacher considered a number of factors.

Teaching style / instruction:

The teacher must be very clear and descriptive when giving instructions and address students by name, not gestures. Josh will require feedback to refine his aim and technique. The teacher should use the whistle and their voice effectively and commentate game play so Josh always knows what's happening around him.

Pre-requisite skills:

Josh's teacher will have discussed the upcoming unit of work with Josh to explain the concepts and skills involved in T ball and to determine what adaptations will be made in the unit. Prior to the commencement of the unit, Josh was provided with support from his PE Teacher to learn how to throw and strike a ball, though use of detailed verbal instruction and physical modeling.

Rules:

Allow Josh to run with a partner between bases OR run safely along marked tape/floor dots to guide him OR nominate someone to run for him. All fielders can have their eyes shut until the ball is hit. When fielding, players can wait for the ball to bounce once before catching someone out. Insert a bell into the tee ball or use a larger ball.

Equipment:

All equipment should have high contrast colours or be modified by adding high contrast coloured tape around it.

Ask Josh what colours work best. When practicing his throw with a partner, use a velcro pad and tennis ball. His partner can scratch the velcro pad so Josh knows where to aim. Josh could also use balls that are larger, softer, deflated or have audible sounds such as bells, beeper balls, balls wrapped in plastic. A tail of bright fabric could also be attached to track the ball in the air.

Environment:

Floor markers such as rubber dots, hula hoops, tape on the ground or tape / flags to mark boundaries can be used to ensure Josh knows where he is in space. When fielding, Josh can be next to a partner to let him know if the ball is coming towards him.

Assessment:

Josh can be assessed by performing the movement, with the teacher observing and asking Josh to explain the correct techniques of the overarm throw, and how he can demonstrate success in T ball. Before batting, the teacher can describe where the fielders are in play and then ask Josh to determine where he should hit the ball.

Safety / risk management:

Ensure Josh is comfortable with the skills and gameplay required in T ball. He can be partnered with a buddy in the outfield if he prefers. The rules and equipment modifications outlined above will reduce the risk of injury.

Additional Resources

Books / E-Books

- Strategies for Inclusion: Physical Education for Everyone
- Gross Motor Development Curriculum for Children With Visual Impairments
- Physical Education and Sports for People With Visual Impairments and Deafblindness: Foundations of Instruction
- Everybody Plays! How Kids with Visual Impairments Play Sports
- Games for People with Sensory Impairments
- Paraeducators in Physical Education: A Training Guide to Roles and Responsibilities

Websites

- Going Places: Transition Guidelines for Community Based Physical Activities for Students Who Have Visual Impairments, Blindness, or Deafblindness
- Camp Abilities — instructional videos on many sports
- American Printing House for the Blind — products, books, research, videos
- PE Central
- Perkins School for the Blind
- Blindsports Australia
- Clearinghouse for sport – modified sports and resources, Australian site

Equipment

- Audible balls available to purchase from various suppliers (e.g. Vision Australia)

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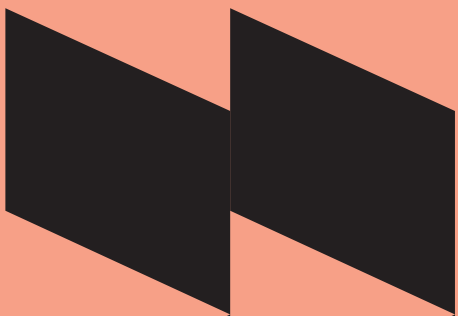

If you require further assistance for children with low vision or blindness to participate in sport or PE please contact Guide Dogs NSW/ACT in your region to connect with an O&M Specialist.

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Years of research, learnings and collaboration amongst many people has allowed this consolidation of some approaches recommended by Guide Dogs.

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