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The Importance of Movement in Developing Brains and Supporting Learning
Saturday, 8:30-10:00 AM

Presented by
Beth Foster,

Developed for
Texas School for the Blind & Visually Impaired Outreach Programs
Contents
Importance of Movement in Developing Brains and Supporting Learning ............................................. 1
Activity Modifications/Accommodations for Students who are Visual Impaired, Blind, or Deafblind ................................................................. 13
Infusing ECC in Physical Education ....................................................................................................... 17
Importance of Movement in Developing Brains and Supporting Learning

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Session Focus

- Best practices to achieve safe and successful physical activities and active movement
- Adaptations and modifications to assist in providing access
- Advantages of ECC recreational and leisure skills to increase movement, independence, socialization, life skills, and JOY!

4 Key Areas to Learning & Performance

Figure 1 A woman holds a baby.

1. Anticipation
2. Motivation
3. Communication
4. Confirmation
Anticipation: Introducing Movement & Physical Activities Strategies

- Allow time for exploration.
- Demonstrate. Demonstrate movement/equipment and allow tactile modeling
- Perform the activities together. (coactive movement/imitation)
- Follow the individual. Student centered
- Add rhythm (turn-taking)
- Use residual vision to aid in learning
- Match movement with a particular object or symbol

Motivation

Figure 2 A group of children in wheelchairs under a large parachute which is being raised and lowered by adults.

- Use preferred objects to implement movement
- Discover their favorite colors and tactual preference
- MAKE it FUN
- What is the incentive?
- Have a reward at the end
- Save their favorite activity for last
Communication: Common Language

Figure 3 Cartoon showing two silhouettes facing each other; a mishmash of letters and symbols rises between them.

- Be able to identify objects
- Make choices and have control
- Build meaningful vocabulary
- Based on the child’s level
- Link language to objects/equipment
- Link objects/equipment to movement, game, or activity
- Gain further knowledge about same and different
- Behavior is Communication

Confirmation: Provide Feedback

Figure 4 A hand rests on the shoulder of a child.

- Provide information that validates their performance
- Let me know how much longer or how many more
- Review everything that was accomplished or the product that was developed
- A simple pat on the back or high five, provide reassurance
Motor Development

- Is the foundation for strength, balance, coordination, and endurance
- Must start with the basics

Teaching Strategies and Activities

Figure 5 Three images: left and right are light bulb shapes filled with brain-like connectors containing a variety of objects. The middle image is like a greeting card with various school related items forming a circle; in the center are the words, “Great teachers engineer learning experiences that put students in the driver’s seat and then get out of the way.” – Ben Johnson, Educator
Learning Styles

Figure 6 A diagram showing learning styles containing 8 circles surrounding the words, "What's your learning style?" Content in each of the circles is included below.

What’s your learning style?

- Visual: You prefer to use pictures, diagrams, images and spatial understanding to help you learn.
- Musical / Auditory: You prefer using sounds or music or even rhythms to help you learn.
- Physical/ Kinaesthetic: You use your hands, body and sense of touch to help you learn. You might “act things out.”
- Combination: Your learning style is a combination of two or more of these styles.
- Solitary: You like to work alone. You use self-study and prefer your own company when learning.
- Social: You like to learn new things as part of a group. Explaining your understanding to a group helps you to learn.
- Logical / Mathematical: Learning is easier for you if you use logic, reasoning, systems and sequences.
- Verbal: Words are your strong point! You prefer to use words both in speech and writing!
Safe and Successful

Before we can ask for any Performance the Physical Education Environment MUST be safe for the student.

Figure 7 Instructor holds the hands of another individual hanging from a harness on a climbing wall.

What do you need to know?

About the student:
- Functional Abilities
- Contraindications
- Communication
- Sensory needs
- Behavior ability
- Socialization skills
- Level of independence
- Preferences

About the task:
- Pre-teaching needed
- Relevant/functional
- Safety precautions
- Promote independence
- Promote socialization
- Promote advocacy
- Can is be applied later
- Can goals be set
Adaptations

- Begin with the smallest amount that will ensure desired performance and success.
- Fade out adaptations as the student begins to gain more skills, awareness, and independence.

Figure 8 A student sits on a therapy ball with her arms around a teacher who supports her; they both have big smiles on their faces.

Increase Learning, Performance, and Attention

- Whole - Part - Whole Instruction
  - Understanding of why (meaningful/function)ional
  - Explore entire environment, equipment, and layout
- Refer to activity as its common name
  - (Language)
- Partial participation
  - (Hand under hand)
Source: (Lieberman, Ponchillia, & Ponchillia, 2013)

Figure 9 Four individuals do leg stretches and they sit on the ground.
Existing Core Curriculum

- English language arts other languages, to the extent possible
- Mathematics science
- Health and physical education
- Fine arts and social studies
- Economics and business education
- Vocational education and history

(Source: www.afb.org)

Expanded Core Curriculum

- Compensatory or functional academic skills, including communication modes
- Orientation and mobility
- Social interaction skills
- Independent living skills
- Recreation and leisure skills
- Career education
- Use of assistive technology
- Sensory efficiency skills
- Self-determination

(Source: www.afb.org)

Figure 10 Individuals in a gym are moving randomly.

WHY ARE YOU PHYSICALLY ACTIVE??
Why is Physical Activity important???

For the obvious health reasons:
- Reduces the risk of dying from coronary heart disease and of developing high blood pressure, cancer, and diabetes.
- Can help reduce blood pressure.
- Helps maintain healthy bones, muscles, and joints.
- Reduces symptoms of anxiety and depression and fosters improvements in mood and feelings of well-being.
- Decreases stress
- Helps control weight, develop lean muscle, and reduce body fat.

In addition, students with vision loss:
- Tend to have lower levels of fitness
- Exhibit less opportunities to participate in physical activities
- Are less active than their peers
- Display delayed motor skills (locomotor and manipulative)

Sources: (Liberman, Bryne, Mattern, Watt, & Fernandez-Vivo, 2010; Lieberman & Houston-Wilson, 1999; Sherrill, 2004)

Physical Activity Increases
- Social Skills
- Self-esteem/self-determination
- Common bond
- Perceptions
- Sense of belonging
- Ownership
- Independence
- Orientation and Mobility Skills
- Physical endurance and fitness
- Spacial awareness
- Gross motor skills

Figure 11 Upward pointing arrow.
IDEA: Physical Education

The Individuals with Disabilities Education Act (IDEA), Public Law 108-466 (2004), states that physical education is a required service for children and youth between the ages of 3-21 who qualify for special education services because of a specific disability or developmental delay.

Physical Education means the development of:

(A) Physical and motor fitness;
(B) Fundamental motor skills and patterns; and
(C) Skills in aquatics, dance, and individual and group games and sports (including intramural and lifetime sports); and

i. Includes special physical education, adapted physical education, movement education, and motor development.

IDEA: Physical Education

(3) Specially-designed instruction

Means adapting, as appropriate to the needs of an eligible child under this part, the content, methodology, or delivery of instruction-

i. To address the unique needs of the child that result from the child's disability; and

ii. To ensure access of the child to the general curriculum, so that he or she can meet the educational standards within the jurisdiction of the public agency that apply to all children.

Sources: (Farrenkopf & McGregor, 2000; Lieberman, Haibach, & Schedlin, 2012; Ponchillia, Strause, & Ponchillia, 2002; Williams, Armstrong, Eves, & Faulkner, 1996)
TEAM BUILDING

Figure 12 Hand-drawn image. Team Building appears in a cloud at the center of the page. These words surround it, each with arrows pointing to the cloud: Communication, Problem Solving, Decision Making, Adaptability, Planning, Trust.

Build and Promote

- Learn patience by waiting their turn
- Social skills when interacting with the other players
- Teamwork when cooperating with others to win
- Leaders vs. followers
- Interactions, complimenting, reciprocating, and empathy

Questions or Comments

Figure 13 Piles of crumpled papers with "?" on each one.
Activity Modifications/Accommodations for Students who are Visual Impaired, Blind, or Deafblind

By: Beth Foster, MS, ABD, CAPE

***Always allow participant to tactiley explore the equipment and playing area prior to starting a new skill or activity. Provide body braille to describe correct form of skill***

Tag Games: (fleeing/chasing)

- Allow student to travel with a peer using a tether or sighted guide
- Allow student to be the tagger- use a pool noodle to gain success tagging
- Have all students be in partners or groups of 3 and play the tag game where everyone must cooperate with teammates to tag others or to avoid being tagged
- Decrease game speed where everyone must walk

Striking: (soccer, volleyball, tennis, baseball)

- Hang a wiffle ball from a basketball net with rope (use for baseball swing or racquet ball
- strikes-forearm or backhand) This will provide tactile location and increase the amount of practice trails.
- Hang a hula-hoop or multiple hula-hoops from a basketball net for target practice and accuracy. Provides a tactile target, you can also add bells hanging inside the hula-hoop to provide feedback if the ball goes through target.
- For soccer kick, dribble, and trap: use a rope attached to the ball then attached to the participant’s waist to keep the ball in location to player. The player can also independently use the rope to bring the ball back to them to practice the skill. Use a grocery bag around the ball to provide more tactile and auditory input. Then use the handles to wrap a rope around.
- Volleyball serve or overhand spike: hang a ball high above the students head where they will have to extend arm to strike the ball. More independence: allow student to toss the ball up and strike it while still hanging from the rope.
Jump Rope:
- Allow student to swing the rope with a partner to feel the movement/location of the rope prior to running under/through the moving rope.
- Practice flipping the rope overhead and then jumping or walking over it, provide hand over hand assistance if needed (bead ropes will provide some auditory sound and more tactile input for stepping/jumping over).
- Start with rope behind and their hands by their shoulders holding the rope to flip it forward.

Catching/Throwing:
- Provide an audible target to throw towards, use poly spots for repositioning.
- Use a beeper ball or one with bells in it.
- Tie a rope to the ball and to the student’s wrist for an increase in practice trials and feedback.
- Throw with a bounce pass to assist with localizing the sound of the ball.

Dribbling:
- Use a balloon and string tied to their wrist to learn the movement of pushing the ball away and having it return to their hand (start with hitting the ball outwards and advance to striking the balloon down to the ground to reflect a dribbling movement)
- Provide hand over hand assistance using a ball and pushing it to the ground and back again.
Teaching Strategies
(What to think about prior to teaching)

About the student:
- Functional Abilities
- Contraindications
- Communication
- Sensory needs
- Behavior ability
- Socialization skills
- Level of Independence

About the program/skill/activity:
- Does pre-teaching need to occur?
- Is it relevant/functional
- Safety precautions
- Promote independence
- Promote socialization
- Can it be applied later
- Can Goals be set

Adaptations/Modifications
(What to change to allow a safe and successful experience)

Environment:
- Surface (hard, grass, rough)
- Location (hallway, outside, inside)
- Setting (1 on 1, small/large group)
- Access to information (visual, physical, auditory)
- Learning styles

Playing Area/Environment
- Make the area larger or smaller
- Make visible boundaries
- Lower the height of goals
- Orient the individual to the activity area
Task/Activity
- Equipment
- Rules
- Dimensions/Distance
- Inclusion: with or without peers
- Relationships (Individual, partnered, grouped)
- Closed or open setting
- Discrete or continuous

The Game
- Change the rules of the game
- Change the objective of the game
- Increase the tactile cues
- Add guidance or a leader
- Change the number of players
- Increase chances
- Decrease time of activity or add rest periods
- Reduce repetitions or slow the pace

Playing Object
- Make the object bigger or smaller
- Make it softer or harder
- Make it audible or bright
- Change the texture of the object
- Make the object heavier or lighter
- Increase the size of the target

The Players
- Change the role of the players
- Limit or add responsibility
- Modify demands on the student
- Decrease competition
Infusing ECC in Physical Education


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<thead>
<tr>
<th>ECC Component</th>
<th>Strategies for Infusion</th>
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</table>
| Compensatory or functional academic skills, including communication modes | • Provide instructions to activities in braille. B  
• Teach students a variety of guide-running technique options. B  
• Include movement games and activities using sound sources as signals. E  
• Provide a tactile map of floor seating. E  
• Teach all students sports that use sound sources and are inclusive. S  
• Provide access to rules of sports or activities using braille or computers instead of handouts. B  
• Teach strategies to access control panel of workout equipment including treadmills or ellipticals. S |
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| Orientation and mobility      | • Pre-teach the physical activity area and games prior to class beginning. B  
• Collaborate with O & M instructor to provide simulated environments for travel practice. B  
• Create an obstacle course that may allow all students to participate in activities to practice fundamental movement patterns (e.g., walk, run, gallop). E  
• Teach the dimensions of courts and fields. S  
• Teach the process of traveling to and from the pool. B  
• Promote body and spacial awareness with physical activities such as yoga or stretching. B |
| Social interaction skills     | • Teach physical activities in which sighted peers can play with children with visual impairments by making simple modifications such as adding bells to a ball. B  
• Train peer tutors and paraeducators to facilitate social interactions during class. B  
• Teach team sports and highlight the importance of teamwork to achieve. S  
• Include teambuilding games and adventure-based learning units to facilitate positive communication among all students. B  
• Encourage students to participate in sport camps or recreational  
activities designed for individuals with visual impairments outside of school. B  
• Rotate roles (leader, team member) between all students within group. B |
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| **Independent living skills** | • Emphasize health topics during their classes (appropriate sport attire, healthy snacks, and encourage a bath after participating in physical activities). B  
• Teach dressing skills for activities like swimming, bowling, or ice skating. B  
• Teach skills for community involvement such as bowling alleys, health clubs and skating rinks. B  
• Discuss accommodations needed during fitness units. S  
• If possible, take field trips to community recreation facilities to practice navigating and using various environments. S |
| **Sensory efficiency**      | • Use music, sound, and other modalities that indicate a beginning or an ending of an activity. B  
• Infuse games like goalball and beep baseball to promote the use  
  of hearing to play the game for every player as each one is blindfolded. B  
• For students with low vision, use brightly colored or neon tape to outline boundaries. B  
• For target sports (such as archery), place a sound source behind the target to assist in localization. B  
• In movement activities such as sprinting, sound can be the target for the student to move to. B |
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<tr>
<td><strong>Self-determination</strong></td>
<td>• Self-determination Prepare students to be successful in different activities using sport as a medium. B</td>
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<td>• Teach the same sports and units as their peers so they will have choices in the future. B</td>
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<td>• Provide a variety of choices in terms of sports that may allow students to develop a sense of autonomy, competence, and at the same time allow them to relate to their peers and family members. B</td>
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<td>• Include students in process of making accommodations or modifications of activities. B</td>
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<td>• Allow students to make choices as to what accommodations they need to participate, do not assume based on previous students. B</td>
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<td></td>
<td>• Keep track of personal bests and athletic goals. Beating these records can lead to higher self-confidence in sport and activity. B</td>
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<td>• Teach lifelong activities that students can choose to participate in after graduation, including what modifications students may need to participate. S</td>
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<td><strong>Recreation and leisure skills</strong></td>
<td>• Pre-teach sport skills in the classroom and facilitate participation</td>
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<td>• in the community by contacting sport clubs or recreational facilities that students can visit. S</td>
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<td>• Teach how to navigate trails and bicycle paths in parks. S</td>
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<td>• Teach fundamental skills for all life-long leisure activities. S</td>
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| Career education    | • Introduce guess speakers who are visually impaired to talk about their career opportunities.  
• Connect with individuals who are visually impaired with careers in sport and recreation via email or postage, create a pen-pal relationship with students.  
• Perform internet searches of individuals who are visually impaired whom are athletes, coaches, or are involved in sport or recreation.  
• Utilize the sport education model so students learn about careers in sport (coach, announcer, journalist, and statistician).  
• Discuss how a higher level of physical fitness may increase an individual’s marketability while job searching. |
| Use of assistive technology | • Teach the use of exercise technology such as talking pedometers and talking heart rate monitors.  
• Incorporate modified Wii or other exergames into the curriculum.  
• Help children navigate the web for assignments on blind sport, role models or the history of a sport.  
  • Use sound sources or sound balls in common PE activities.  
• Navigate the internet with students to find sport related opportunities such as camps for individuals with visual impairments (e.g. Camp Abilities) or sport organizations (e.g. USABA). |
Texas School for the Blind & Visually Impaired Outreach Programs

Figure 14 TSBVI logo.

Figure 15 IDEAs that Work logo and OSEP disclaimer.