Brain Body Connection: How Actions and Emotions Effect Cognitive Function

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How?
Why?
Objectives - Intention

• Experience how effective movement & mindfulness are to well-being, learning and social - emotional development.

• Experience how movement & mindfulness can easily and immediately shift a child’s (or your) State of Mind.

• Be inspired to use games and movement stories to integrate and model daily self-awareness and self-care skills in your practice or classroom.

• Discover new resources for bringing movement & mindfulness to your classroom.
Overview

- Pre-Activity, Adventure Skills, Post-Activity
- The Power of Hydration - Activity
- Integration of Common Core Standards
- Head, Shoulders, Knees and Toes (The Brain Gym®/MwM Version) - Game
- Review Triune Brain Theory
- A Musical Bus Tour of the Brain - Activity
- State of Mind - Game
- Pass the Message - Game
- Question and Answer - Demos
Pre-Activity / Post-Activity

• Note the distance from a chart, and mark with tape, that you can comfortably stand and see clearly. Return to your seat.
• Turn head to left.
  – Notice how it feels.
  – Notice range of peripheral vision.
• Turn head to right.
  – Notice sensation and vision.
• Fold from hips into forward bend
  – Notice sensation and range of motion, touch your fingers lightly on your knees or shins to mark ROM
AS Named to Engage Kids 2-7 years old

- Adventure Skill # 1
- Adventure Skill # 2
- Adventure Skill # 3
- Adventure Skill # 4
- Adventure Skill # 5

#1-4 Ordered to coincide with Brain Gym®’s PACE
Activities to enhance bi-lateral integration: 

**Infinity 8's**

Starting at the midline, follow your hand as you draw 3 lazy eights. Repeat with other hand and again with both hands.

Facilitates:

- Crossing the visual midline
- Hemispheric integration
- Binocular and peripheral vision
- Eye muscle coordination for tracking
- Relaxed grasp

*Brain Gym® Thinking Cap*
Bilateral Exercises to Decrease Off-Task Behaviors in Special-Needs Pre-schoolers

-Dr. Jennifer Dustow, August 22 to September 30, 2005.
Public elementary school in Oahu, Hawaii.

www.amazon.com/Autism-Project-Dr-JenniferDustow/dp/3838316614
Mindful Attention
Drink Water

Drink water regularly to sustain feeling well, thinking clearly and being friendly.

Enhances:

• Electro-chemical activity in Central Nervous System
• Processing speed
• Stress release
The Power of Hydration

Purpose: To reinforce the principle that water is the most easily accessed and frequently needed Adventure Skill, to demonstrate that water is a powerful conductor of electricity and that the human body, consisting of between 60%-75% water, needs to remain well-hydrated in order to deliver its millions of electrochemical messages.

Materials: Dehydrated green plant, energy ball*, cup of water

Standards Addressed: AtL, LR, LD, SKS, PHD
Think Drink Chant:
I’m a water drinker
All day long
I’m a water drinker
So I stay strong
Sip, sip, sip
Gurgle, swig, chug
I’m a water drinker
Glug, glug, glug
English Language Development
The ten domains above apply to all children. One domain, English Language Development, applies only to children who are dual language learners (DLLs). These children speak a language other than English at home.
Head Start/Common Core Early Learning Framework

• Physical Development & Health (PDH)
• Social & Emotional Development (SED)
• Approaches to Learning (AtL)
• Logic and Reasoning (LR)
• Language Development (LD)
• Literacy Knowledge & Skills (LKS)
• Mathematics Knowledge & Skills (MKS)
• Science Knowledge & Skills (SKS)
• Creative Arts Expression (CAE)
• Social Studies Knowledge and Skills (SSKS)
• English Language Development (ELD)
Elephant Wisdom*

Activities that support our sense of Organization and relationship:

Activates the brain for:

- Crossing the auditory midline
- Listening to one’s own voice
- Short-term working memory
- Silent speech and thinking
- Binaural listening
- Switched on RAS (reticular activating system)

*Brain Gym® Thinking Caps
Head, Shoulders, Knees, and Toes

• Children’s processing is 80% visual
• Play your way through multiple BG/MwM moves
  – Oh No! Ah Yes! (Positive Points)
  – Elephant Wisdom (Thinking Caps)
  – Energy Yawn
  – Peekaboo
  – Mouth, mouth, mouth, mouth, mouth
    (Modified Space/Earth Buttons)
# Triune Brain Theory

<table>
<thead>
<tr>
<th>Lizard Brain</th>
<th>Mammal Brain</th>
<th>Human Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain stem &amp; cerebellum</td>
<td>Limbic System</td>
<td>Neocortex</td>
</tr>
<tr>
<td>Fight or flight</td>
<td>Emotions, memories, habits</td>
<td>Language, abstract thought, imagination, consciousness</td>
</tr>
<tr>
<td>Autopilot</td>
<td>Decisions</td>
<td>Reasons, rationalizes</td>
</tr>
</tbody>
</table>

The Triune Brain in Evolution, Paul MacLean, 1960
March of the Penguins
A Musical Bus Tour of the Brain
*music by Eve Kodiak

Brain Area - Dimension

Neocortex - Communication (Laterality)
  “The Robot”
  Shoulders/Neck

Limbic - Coordinating (Centering)
  “The Swimmer”
  Chest/Stomach

Reptilian - Focus
  “The Penguin”
  Back/Calfs
Humming Breath*

Rub spots under collarbone with thumb and one finger while holding other hand over navel and tracking eyes horizontally. Deep breath and HUMMMMMMMM to calm and focus.

Stimulates:

- Flow of oxygen to the brain
- Hemispheric integration - eyes track across the midline
- Binocular vision - eye teaming
- Reticular Activating System – filter sensory info

*Similar to Brain Buttons in Brain Gym®
Humming Breath Chant

One hand on my belly, I let it rest
I bring the other hand up to my chest
I find a pair of buttons beneath the shelf
And Huuuuuuummmmmmm
To calm myself
I move my eyes slowly
From the left to the right
Heart calm, mind clear
Body strong, eyes bright!

Humming Breath Video
http://vimeo.com/68339890
Monkey Wisdom

March in place, alternately touching hands to opposite knees to energize body and wake up brain.

Enhances:

• Crossing the visual/auditory/kinesthetic/tactile midlines
• Hemispheric integration
• Binocular vision
• Binaural hearing
• Left right coordination
• Stability in the walking gait

*Cross Crawl in Brain Gym®
Monkey Wisdom Chant

Cross, tap
Cross, tap
Cross that brain bridge
With this rap!
Elbow, knee
Elbow, knee
School is so fun for me! Freeze!
Hand, heel
Hand, heel
I can choose the way I feel!
Cross, Tap, Cross, Tap, Cross that brain bridge with this rap

Monkey Wisdom Video
http://vimeo.com/68339892
State of Mind Game

Purpose: To understand the three different levels of cognition or “States of Mind”, to develop the ability to intentionally self-regulate by shifting our state of mind.

Materials: 4 large dice, sidewalk chalk

Standards Addressed: PDH, SED, AtL, LR, LD, LKS, MKS, SKS, CAE, ELD
Deep Down Wisdom

1. Cross your ankles and wrists. Clasp hands and rest them at your sternum.
2. Breathe and think of something or someone you love.

Supports:

- Emotional centering
- Activates the parasympathetic (peaceful nervous system)
- Grounding
- Respiration
- Self-control and boundaries

*Hook ups in Brain Gym®
Deep Down Wisdom Chant:
Feel your upset melt away
As your wisdom comes to play
Your heart will know what’s best to do.
Listen deep down and let it guide you.

Deep Down Wisdom Video
http://vimeo.com/68339891
Executive Function

- Kids need access to frontal cortex for higher levels of learning
- Stress blocks that access:
  - Dehydration
  - Poor nutrition
  - Inability to self-soothe or regulate
  - Developmentally inappropriate activities / expectations
  - Your stress about assessment or behavior management
Pass the Message

**Purpose:** To demonstrate that learning new tasks is easier and faster with repetition, to show, kinesthetically, how the brain prunes what isn’t used, in order to become more efficient and strengthen what is being used, to develop higher level thinking such as: cooperation, teamwork, and decision making.

**Materials:** Paper, timer

**Standards Addressed:** PDH, SED, ATL, LR, LKS, MKS, SKS, ELD
Shifters
Decrease Stress for Greater Access

• Embodied Self-Care and Regulation

• Play & Games

• Slow Intentional Coordinated Movement:
  Yoga, Karate, Thai Chi, Gymnastics

• Music & Story
Inspiring Executive Function

• You modeling SR triggers their mirror neurons
  – Kids DO as you DO

• You mirroring not managing behavior gives them time & space to figure out how to self-regulate

  “I notice you are _________________________”
  “It looks like you’re feeling ________________”
  – Mirror their responses w/curiosity
  – Ask specific body sensation questions.
  – Ask how they could help themselves.
  – Offer a suggestion if appropriate.
Story in Motion or Music and Movement

Purpose: To inspire early literacy, movement, creativity, and a love of learning. To integrate self-care/self-regulation skills with characters from the story. Reading supports a wide range of positive outcomes, from phonological awareness to social emotional learning and self-awareness.

Materials: The recommended lesson book or a book of your choice

Standards: PDH, SED, ATL, LD, LKS, CAE, SSKS, ELD

Procedure: Read each book at least twice in the course of the week
Mindful Attention
Integrated and Mindful

- Get in **PACE** daily – Be ready to explore/expand one’s learning and physiological potential!

- Have **clear intention**: See problems as possibility for changes.

- Encourage awareness: Notice thoughts, feelings, and/or sensory/motor function **before** Movement/play.

- Choose to **MOVE** – Fast and fun, then Adventure Skills, Brain Gym®, or yoga!

- **Notice the changes** on thoughts, emotions, and/or sensory/motor functions **after** a slow intentional movement sequence.

  Celebrate!
Kristen age 8, case excerpt from “Envisioning a Bright Future” by Patricia Lemer. Original handwriting 2/18/03

Apple sees orig
and salt peer
and toys and drugs
and hot sas ag
and glow and hard
and cont and hard
2/25/03

After I went to school, my brother Michael would get up and he'd get ready for school. Then my brother would go to school in the afternoon, while he was at school, my dad would be at work, and my mom would be at home. After it was the end of the day, I would come home from school. I would do my homework.

Follow up sample submitted to Brain Gym® Instructor, Mary Rentschler, by parent on 2/25/03, three days following a Brain Gym Balance.
Richard W., 43 y/o, status post stroke subsequent to seizures, seen in acute care on March 15, 2010.

Original handwriting sample obtained by OT & Brain Gym® Instructor, Denise Figueiredo, at the beginning of an occupational therapy session using Brain Gym intervention. Pt unable to write his name from memory initially.
Post Brain Gym Activity – sample obtained at end of Brain Gym session. Pt able to copy numbers and sign his name from memory.
Research Highlights

**EMBODIED SELF-REGULATION SKILLS**

- Decrease off-task behavior in preschool age children (*Dr. Jennifer Dustow, Autism Project, 2009*)


**MINDFULNESS**

- Increases attention span and ability to ignore distractions and concentrate effectively

SLOW INTENTIONAL MOVEMENT

• Unifies and integrates mind/body experience (Journal of Cognitive and Behavioral Practice 2009)

• Organizes whole-brain function for optimal learning (Dennison and Hannaford, 1999)

• Improves executive functions (Science 2011)

• Concentrates BDNF in the hippocampus, enhances long term memory retention (Ratey, 2008)
CARDIO EXERCISE

• Over-rides the body's physiological response to stress

• Stimulates the release of BDNF, which grows the brain (Ratey, 2008)

• Improves the cognitive control of attention

• Enhances academic performance (Hillman, CH, Pontifex, MB, Raine, LB, Castelli, DM, Hall, EE, Kramer, AF, 2009)

STORIES

• Focus attention and engage participant in an empathic response, creating a significant physiological effect on the body and on behavioral choices. (Paul Zak, 2013)

• Activate episodic memory and light up the whole brain for learning (Dr. John Medina, Brain Rules, 2010)
Resources

- Move-with-Me.com
- Imaginazium.com: Yoga Kit for Kids:
- Barefootbooks.com: Yoga Pretzel/Planet Decks
- Yogaed.com: Yoga Tools for Preschool Teachers
- Omazingkids.com
- Braingym.org
- LearningStationMusic.com
- mindfulnesseducation4life.com
- victoriatennantconsulting.com
- EveKodiak.com
- yokid.org Thrive, Breathe, Move, Grow
Bibliography


Bibliography


• Sally Goddard Blythe - http://www.sallygoddardblythe.co.uk/index.php
Science Research Highlights
Bibliography

Stories/Literature:


Embodied Self-Regulation Skills:


Science Research Highlights

Bibliography

Mindfulness:


Cardio-Exercise


Science Research Highlights
Bibliography

Slow Intentional Movement

• Link - http://kch.illinois.edu/research/labs/neurocognitive-kinesiology/files/Articles/Gothe_2013_TheEffectsOfA.pdf