



The Neuroscience of Recess Webinar



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Presenter



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Webinar Basics


- We'll have a Q & A later in the webinar.
- Check Recess Blog for additional answers
- www.blog.peacefulplaygrounds.com

Email us at : info@peacefulplaygrounds.com



Survey at end of Webinar


- Survey at end of presentation
- Fill out survey to receive copy of slides




Objectives

1. Understand the Benefits of Physical Activity in Relationship to Brain Health
2. Understand the Research behind the Neuroscience of Physical Activity


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The Amazing Brain




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 The Amazing Brain: Cerebral Arteries




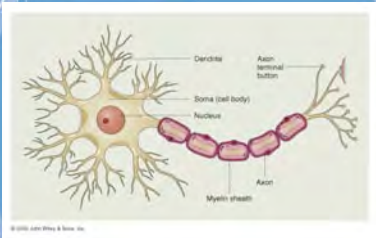
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 The Amazing Brain: Neurons


Video here

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 The Amazing Brain: Neuron




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 The Amazing Brain: Synapse


Video here

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 The Amazing Brain: Synaptogenesis

Video here

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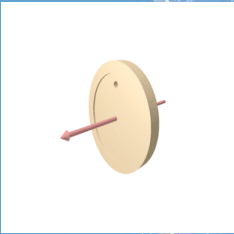
 How Does Recess Affect the Brain?

1. The Vestibular System
2. BDNF (Brain-derived neurotrophic factor)
3. Physical Activity

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The Vestibular System

- The Vestibular Sense is vital in both Movement (Dynamic Balance) and Stillness (Static Balance). (Macintry & McVitty, 2004)
- Facilitates children's development of the following skills:
 - Balance
 - Learned motor skills: walking, hopping, & running.
- The rhythmic movement of play supports language development (eye-tracking necessary for reading)



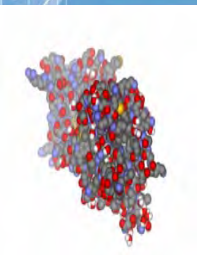
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Stimulating the Inner Ear : Supporting Balance

Movement, particularly stimulation by rocking, spinning, or hanging upside down, helps develop a large important area behind the brain stem: the cerebellum, which connects the vestibular system that is linked to balance mechanism in the inner ear. The cerebellum also interacts with higher, frontal levels in the brain for cognitive skills such as language, social interaction, music, the ability to perform repetitive activities automatically (e.g. handwriting), and perhaps attention. (Healy, Jane M. 2004)

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What Is BDNF?



Brain-derived neurotrophic factor (BDNF) is exactly as it states; a neurotrophic factor found in the brain. More specifically, it is a protein that helps to support the survival of existing neurons, and encourage the growth new synapses connections.

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BDNF & Physical Activity



Research reveals that vigorous physical activity turns on genes in the brain and it acts in specific areas. It generates the production of BDNF, and one thing that turns off this brain growth factor is stress.

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Physical Activity & the Brain



The cyclical process between the brain and physical activity has a role in neurogenesis. *Leshner (2002)*

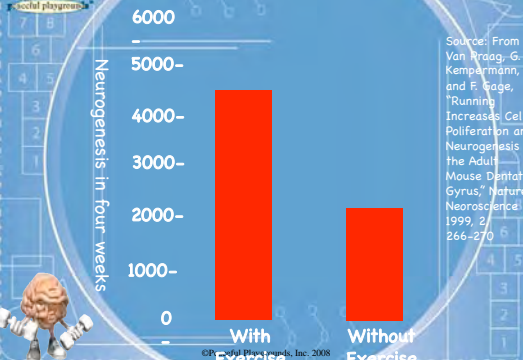
Muscles in the body rely on the brain for cues to begin movement or react to a stimulus.

This movement, in-turn, regulates blood flow

Blood-flow feeds the brain both oxygen and nutrients.

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Exercise Doubles Neurogenesis




Condition	Neurogenesis in four weeks
With Exercise	~4500
Without Exercise	~2000

Source: From H. Van Praag, G. Kempermann, and F. Fage, "Running Increases Cell Proliferation and Neurogenesis in the Adult Mouse Dentate Gyrus," *Nature Neuroscience*: 1999, 2, 266-270

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Recess = Learning



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Nature's Ultimate Couch Potato



The sea squirt is an example of a basic principle of nature: Use it or lose it....

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A Generation of Couch Potatoes



The Percentage of Obese Children in the United States has Skyrocketed to 25%, signaling an epidemic, and the percentage will surely grow unless dramatic changes are made in childrens lifestyle.

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Is this where we're headed?



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Peaceful Playgrounds Featured Articles




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PP Resources


- Learn to this Podcast program - Recess Before Lunch Schedule
- Recess Before Lunch Program - Additional Resources
- For additional resources on Recess Before Lunch programs visit Recess Before Lunch: A Guide to Success on the National Team Nutrition Network. Recess Before Lunch: Call Your Local Health Department. From Education World's Administrator Center includes ideas for making the change to recess before lunch.
- Be sure to leave a comment with your thoughts and success stories on the Recess before Lunch Program at the Recess Doctor Blog.
- Recess Before Lunch: Action for Healthy Kids Colorado, Western Dairy Council, 2005
- Relationships of Physical and Recess Schedules to Pupil Weight Status: National Food Services Management Institute.
- Barriers to Recess Placement Prior to Lunch in Elementary Schools: Publication for Child Nutrition Professionals from the National Food Service Management Institute, Summer 2006.
- Scheduling Recess Before Lunch: Does it Work? National Dairy Council, Sept/Oct, 2004.
- Benefits of Recess Before Lunch That Count: Child and Adult Nutrition Services, SD Department of Education
- Recess Before Lunch: It Does Make a Difference: Rationale, Alice Schmalz Nutrition Association Conference Presentation 2006

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- Do you have some thoughts, questions or solutions to share. Post them to our comments section of the Recess Blog and watch them appear.



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