

The Wellness Family

Dr. Erin Keeps You Informed

Brain Exercises For All Ages

We all know that exercise is good for our bodies; we can promote good health and stay fit if we exercise regularly. What you may not know, is that the same is true for the brain.

Just like any other muscle, the brain can get in shape, be strengthened and developed with use or exercise.

What About the Brain?

The human brain is made up of nerve cells called neurons and these are connected by synapses which transport information from one neuron to the other. Just like other muscles and organs, the brain does change with age; synapses fire more slowly, some cells die off and the overall mass of the organ shrinks. However, advances in brain imaging and neuroscience coupled with studies of twins have shown that not all change is genetically predetermined or inevitable.

This new understanding of the brain and its response to exercise has created an entire new industry based on a word coined by Drs. Katz and Rubin in 1999 called "neurobics". This is a term for mental exercises which are used to increase the range of mental motion by activating different parts of the brain. But, while "neurobics" are a specific set of exercises, studies have shown that any exercising of the brain may, not only stave off brain degeneration, but in many cases reverse memory loss and improve mental agility.

Infants to Toddlers

A baby is born with approximately 100 billion neurons and during their everyday activities the synapses are developed. Activity, interaction and movement are like food for an infant's brain, helping it to develop.

Many parents have expressed delight in what they consider an early or advanced milestone when a child goes straight from rolling over to walking. However, the act of learning to crawl develops synapses that cross the hemispheres in the brain.

Crawling requires the movement of the right arm with the left leg and vice versa. This motion or "cross-crawling" is a physical exercise that activates the nerve cells in the brain and stimulates them to create synapses or neurological pathways between the left

and right side of the brain. Crawling is as vital in stimulating brain growth as it is in helping a child be mobile. In fact, it's more important.

Studies have found that not only can avoiding crawling cause learning difficulties in reading, writing and comprehension, but even speech can be affected if the crawling stage of development is skipped.

If an infant has gone from rolling over to using objects to creep along in a standing position, it's important to take the child down from the furniture and encourage them to crawl.

Children and Pre-Adolescents

Obviously, children and pre-adolescents are going to benefit from brain games that encourage them to



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actually use their brains. For instance, memory games where the children try to turn over one card at a time and match the cards. These games have been around for years but are still beneficial. Puzzles, card games and even riddles can be equally valuable.

This age group will also benefit in the same way from physical games. Research has shown that children in this age group can best exercise their brain by playing physical games that force them to cross the midline and engage both sides of their bodies simultaneously. Crossing the midline is the act of the right arm crossing over the left-hand side of the body and vice versa. In many ways this is beneficial in the same way that learning to crawl is beneficial to an infant.

Recent studies have found that today's youth are struggling with cognitive thinking due to a lack of physical activities and games. Not referring to dominant-sided organized sports such as baseball or football, but instead to games like dodgeball and tag. These games demand the use of binocular vision

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beyond arm's length and require the child to involve three-dimensional space.

Enjoyable Games and Their Benefits

As children move into their teens, the higher demand of their studies may be beneficial brain exercise. However, since teens tend to do what they want, they will be more likely to engage in something they enjoy. Even adults will generally find themselves more willing to participate in something fun, rather than something that is just beneficial.

Sudoku, the popular puzzle game, is a perfect brain game as it requires discerning, deciphering and decoding while still being challenging and compelling. Equally beneficial while still entertaining will be crossword and jigsaw puzzles, but these may not be as amusing to today's youth.

One challenging brain exercise for teens is listing a set of three items and asking the teen to determine what each item has in common. For instance: needles, hurricanes and potatoes all have eyes.

Video Games

Recognizing that teens and adults are fascinated and challenged by IQ tests and trivia questions, Nintendo DS and Wii have released several video games in this genre. Brain games that will require testing knowledge and memory, that are also fun, include for the DS: Big Brain Academy, Brain Age, Brain Age 2, Ultimate Brain Age and Master Jin Jin's IQ Challenge. For the Wii, Nintendo has created Big Brain Academy, Margot's Word Brain and Brain Challenge.

Exercise with Strategy

Some of the best brain games will continue to be those that have been around for years, with the most obvious

being chess. Requiring the contestants to strategize, consider their moves two or three in advance, and speculate what moves their opponent will make, has chess listed as the most beneficial of all brain exercises. However, this doesn't mean that it should rule out checkers or card games. Any game that requires strategizing and decision making regarding the potential results of a certain move will give the brain an excellent workout.

Exercising the Brain for Seniors

It's no joke that it's easier to remember something from 50 years ago than it is from yesterday. Growing awareness about brain degenerative diseases has people in their early 50's starting to worry. This may be why companies like AARP and MetLife are beginning to focus on the importance of brain health.

Research published in the *Journal of Neuroscience* in 2008 revealed that if a neuron doesn't receive sufficient stimulation through active synapses it will eventually die. On the other hand, if it receives stimulation from other neurons developing along the same neural pathway, it lives and grows. It's this simple.

Crossword and Jigsaw puzzles, Sudoku and reading the newspaper are just the beginning of ways to exercise neurons and synapses. Fun challenges or "neurobics" can be equally if not more beneficial. For instance, wearing a wrist watch on the other arm, brushing teeth with the opposite hand or wearing a blindfold at home for an hour; these games or mental exercises stimulate the brain by causing it to do mundane activities differently.

In Summary

The brain is just like every other muscle or organ in your body: if you don't use it, it won't perform at its peak. At any age our brains can benefit from a little out of the ordinary exercise.

Dear Parent,

Dr. Erin is dedicated to providing you with the absolute best in family wellness care. So take a moment today to discuss with your Family Wellness Chiropractor any concerns you may have regarding your family's overall health and wellness.

This newsletter is provided to you by:

**SLO Chiropractic Center
Dr. Erin Parsons
at 2066 Chorro Street
San Luis Obispo, CA 93401
805.541.2225**