

Brainpaths™

Brainpath Research

Brainpath Tools

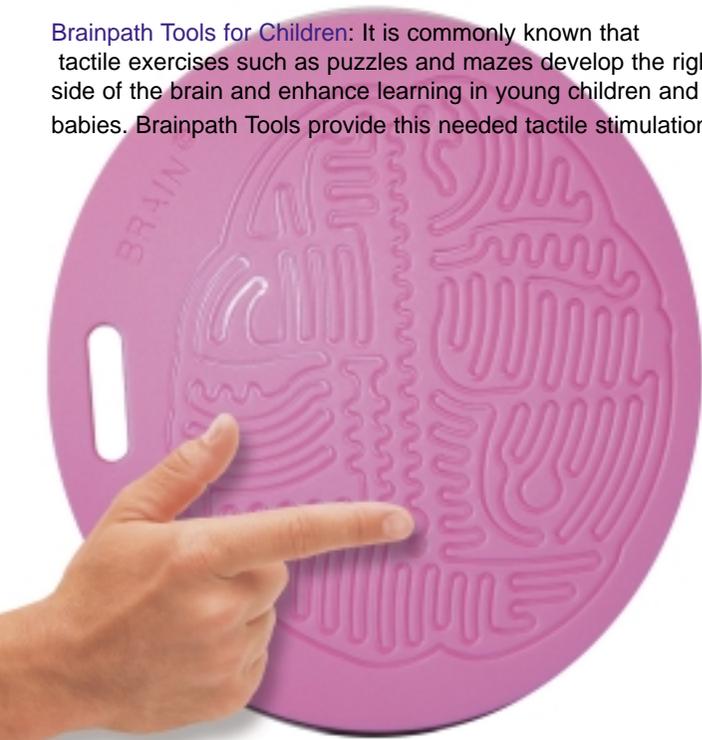
A Brainpath Tool is a device constructed of durable plastic, with grooves or raised lines that form a path. Fingertip movement along the path, complete the exercise. Paths are either laser cut or molded into the plastic. Since fingertips are a superhighway to the brain, fingertip movement along the paths provides tactile exercise that stimulates the brain.

Using Brainpath Tools on a regular basis enables the human brain to rewire itself, add new dendrites, repair areas of the brain that have been lost due to illness or lack of use, and enable the individual to lead a more productive, active life. Through these repetitious mind exercises, memory is increased, cognitive abilities improve, anxiety, depression, and stress are released.

Brainpath Tools may be used by individuals of all ages to keep their brain active and alert. They are designed to assist patients with Alzheimer's Disease, dementia, brain trauma, Multiple Sclerosis and other brain disorders.

Brainpath Tools come in different shapes, sizes and configurations, but all Brainpath Tools have paths for the fingertips to follow.

Brainpath Tools for Children: It is commonly known that tactile exercises such as puzzles and mazes develop the right side of the brain and enhance learning in young children and babies. Brainpath Tools provide this needed tactile stimulation.



Finger Touch: At the Hopkins's Krieger Mind/Brain Institute, research is being conducted on how the human brain responds to "finger touch". The human hand contains about 100,000 nerves, of (at least) 20 different kinds: twelve receive various touch sensations, eight are motor fibers carrying commands from the spine.

Each fingertip has more than 3,000 touch receptors, many of which respond primarily to pressure. These are packed in, just under the surface of the skin, where each reports events in overlapping fields about one-tenth of an inch across.

The entire human body trunk, by contrast, has about as many touch receptors as a single hand. When you touch something, what happens in the skin and homunculus (brain) is fairly straightforward: neurons fire. (**The Handy Guide to Touch, Elise Hancock, John Hopkins Magazine, April 1995**)

Tactile Stimulation: New learning through the fingertips In the past few years, vast research has revealed that the brain never stops changing and adjusting. Learning is "the ability to acquire new knowledge or skills through instruction or experience. Memory is the process by which that knowledge is retained over time." The capacity of the brain to change with learning is plasticity.

So how does the brain change with learning? There appears to be at least two types of modifications that occur in the brain with learning: a change in the internal structure of the neurons, the most notable being in the area of synapses, and an increase in the number of synapses between neurons.

Brain plasticity means the ability of the nervous system to adapt to changed circumstances and find new ways of learning, sometimes after an injury or a stroke, but more commonly when acquiring a skill. Professor Elbert conducted experiments with individuals who used Braille. The experiments were conducted to determine whether adult brains have plasticity.

The findings showed a "super highway from the fingertips to the brain. The fingertips provided a means for the brain to adapt and find new ways of learning. (**Brain Plasticity, Thomas Elbert is Professor of Psychology at the University of Konstanz in Germany, January 1998, Radio National, the Health Report**)

The Skin is An Extension of the Brain:

The effects of tactile stimulation on the structure of the brain can be appreciated by understanding that the skin is almost an extension of the brain, formed as it is from the same layer of tissue during the embryonic stage of life (**Taylor, 1979:136**). (**Biosociology: An Emerging Paradigm, Anthony Walsh,1995**)

Repetition forms Connections

A new study suggests there might be some truth to the use-it-or-lose-it hypothesis. The cells and connections that are used will survive and flourish, while cells and connections that are not used will wither and die (**Dr. Jay Giedd MD, frontline interviews, PBS**)

Scientists theorize that cognitive activities are protective in some way. Some speculate that repetition might improve the efficiency of certain cognitive skills and make them less vulnerable to the brain damage in Alzheimer's Disease. Repetition provides mechanisms that might strengthen information processing skills to help compensate for age-related declines in other cognitive areas.

Repetition forms connections. With proper stimulation, the synapses become stronger. Electrical chemicals are sent out that make the connections stronger and more permanent. (**Brain Development, Karen DeBord, North Carolina Cooperative Extension Service**).

Relaxation to Relieve Stress, Depression, and Anxiety

Nine Steps toward a longer, healthier life

1. don't smoke
2. **build** physical and **mental activities into every day**
3. Eat a healthy diet
4. Take a daily multivitamin
5. Maintain healthy weight and body shape
6. **Challenge your mind**
7. Build a strong social safety net
8. Protect sight, hearing, and health
9. Discuss need for medications with doctor

Brainpath tools will build **mental activities into every day** and **challenge the mind**. But, in addition, Brainpaths will provide the tactile, sensory, fingertip connection to the brain that will actually improve the functioning of the brain. Numbers above: 1, 3, 4, 5, 7, 8, and 9 all deal with a healthy body, but have no clear connection to improving the brain. Improving your brain has to be done with a tactile approach. In other words, brain activities that will change and rewire the brain. Modern research has shown that it's the tactile approach that actually rewires the brain. (**Living Better, Living Longer, health.harvard.edu**).