FINGERTIP TRACING STIMULATES YOUR BRAIN Brainpaths.com July 5, 2017

Research Discoveries:

1995: FINGERTIP TRACING STIMULATES YOUR BRAIN John Hopkins Krieger Brain Institute. **1997: PLASTICITY OF THE BRAIN**: The brain is not rigid and can repair itself: neurons increase in number and size and form stronger synapse connections. German Scientists found the adult brain is almost as malleable and plastic as a child's.

In 1995, John Hopkins Krieger Brain Institute published, Handy Guide to Touch and Primer on Touch. These articles revealed 3000 mechanoreceptors in each fingertip that provide a superhighway to the brain. This published research clearly outlined the power of Braille being dependent upon touching mechanoreceptors that provide a *superhighway* from the fingertip to the spinal column to the sensory cortex of the brain. Therefore, research tells us that Braille uses fingertips to reach the sensory cortex of the brain to decode the Braille dots for the blind. So, it is the fingertips repeatedly touching textures that fire neurons in the brain. Without touching the receptors in the fingertips, Braille dots would be nothing more than another motor exercise with no specific purpose.

Brainpaths USPTO Utility Patent #9,132,059 includes this research in it's patent: tracing Brainpaths devices repeatedly touches 3000 mechanoreceptors in each fingertip to stimulate the brain, published in the following research found in the body of the patent:

As with muscle tone and cardiovascular fitness, use of the brain is required to prevent loss. Cells and connections that are used will survive and flourish, while cells and connections not used will wither and die. (Dr. **Jay Giedd** MD, frontline interviews PBS)

Repetition provides mechanisms that strengthen information processing skills to help compensate for age and related declines in other cognitive areas. Repetition forms connections and with proper stimulation, the synapses become stronger. During use electrical chemicals are sent out that make the connections stronger and more permanent. (Brain Development 1997, **Karen DeBord**, North Carolina Cooperative Ext.)

Scientists are sure that the adult brain does, to some extent, rewire itself. This finding helps explain how learning occurs and may lead to ways of improving recovery from learning disabilities, stroke, and other brain disorders through special "brain exercises". One example given to develop new connections between brain neurons is learning to read Braille. (Brain Briefings, brain reorganization, **Leah Ariniello**, Science Writer, Society for Neuroscience, Dupont Circle, NW, Suite 500, Washington D.C., 20036).

In an article regarding research done with stroke patients, Dr. Mike Ridding, of the University of Adelaide noted, "Simple finger movement can change the size of the area of motor cortex that controls specific finger muscles, and even alter its neural connections. In blind Braille readers, the cortical area for the reading finger is much larger than for a non-reading finger ... By developing a method of stimulating the pathways leading back to the brain from the affected muscles, we may be able to encourage the development and use of an alternative cortical area to that damaged by the stroke."

(Rewiring the damaged brain, Monday, 10 Apr. 2000, University of Adelaide, Dr. Mike Ridding).