

The Memory Practice

www.thememorypractice.com

Newsletter

Issue 15 - March 2008



In this issue, Dr. Michelon tells you about

How learning can change your brain

Do you know adults who would enjoy or benefit from brain exercises? Let them know about The Memory Practice.

Contact us to discover the advantages of our Home Program:

- Brain exercises sent directly at home
- Regular feedback from Dr. Michelon

(314) 726-5105

thememorypractice@yahoo.com

Watch your brain grow!

For a long time, it was believed that as we age, the connections in the brain became fixed.

Research has shown that in fact the brain never stops changing thanks to learning. This capacity to change is what we call the brain's plasticity.

A consequence of plasticity is that when you become an expert in a domain, the areas in your brain that deal with this type of skill will ... grow!

Here are examples:

Taxi drivers

London taxi drivers have a larger hippocampus (in the posterior region) than London bus drivers (Maguire, Woollett, & Spiers, 2006).

Why is that? It is because this region of the hippocampus is specialized in acquiring and using complex spatial information in order to navigate efficiently. Taxi drivers have a larger hippocampus than bus drivers because they use that brain area more than bus drivers. Indeed taxi drivers have to navigate around London whereas bus drivers follow a limited set of routes.

Musicians

Plastic changes also occur in musicians brains compared to non-musicians. Gaser and Schlaug (2003) compared professional musicians (who practice at least 1h per day) to amateur musicians and non-musicians.

They found that gray matter (cortex) volume was highest in professional musicians, intermediate in amateur musicians, and lowest in non-musicians in several brain areas involved in playing music: motor regions, anterior superior parietal areas and inferior temporal areas.

Bilinguals

Plasticity can also be observed in the brains of bilinguals (Mechelli et al., 2004).

It looks like learning a second language is possible through functional changes in the brain: the left inferior parietal cortex is larger in bilingual brains than in monolingual brains.

Students

Draganski and colleagues (2006) recently showed that extensive learning of abstract information can also trigger some plastic changes in the brain.

They imaged the brains of German medical students 3 months before their medical exam and right after the exam and compared them to brains of students who were not studying for exam at this time.

Medical students' brains showed learning-induced changes in regions of the parietal cortex as well as in the posterior hippocampus. These regions of the brains are known to be involved in memory retrieval and learning.

What are these changes?

It seems that changes in the brain associated with learning occur mostly at the level of the connections between neurons. New connections can form and the internal structure of the existing connections can change.

Conclusions

- Take advantage of plasticity: make sure you stimulate your brain to keep it healthy.
- It is never too late to learn a new skill because changes in your brain can occur throughout your life.
- So, do not hesitate anymore: start that painting, piano, golf, etc. class tomorrow!