

Essay



**ASSIGN
BUSTER**

Language and Communication 06 January 2010 Keeping the brain young You hear the same complaint all the time as people get older: “ My memory is terrible. ” Is it all in the mind, or do real changes take place in the brain with age to justify such grumbling? The depressing answer is that the brain’s cells, the neurons, die and decline in efficiency with age. Professor Arthur Shimamura, of the University of California at Berkeley, says there are three main ways in which mental function changes. The first is mental speed, for example, how quickly you can react to fast-moving incidents on the road.

Drivers in their late teens react quickly but tend to drive too fast, while the over sixties are more cautious but react more slowly. The near-inevitable slowing with age also partly explains why soccer players are seen as old in their thirties, while golf professionals are still in their prime at that age. This type of mental slowing results from a reduction in the efficiency with which the brain’s neurons work. The fact that adults find it harder to learn musical instruments than children points to a second type of mental loss with age – a reduction in learning capacity.

The parts of the brain known as the temporal lobes control new learning, and are particularly vulnerable to the effects of ageing. This means that, as we get older, we take longer to learn a new language, are slower to master new routines and technologies at work, and we have to rely more on diaries and other mental aids. “ Working memory” is the third brain system which is vulnerable to the effects of ageing. Working memory is the brain’s “ blackboard”, where we juggle from moment to moment the things we have to keep in mind when solving problems, planning tasks and generally organizing our day-to-day life.

Absent-mindedness occurs at all ages because of imperfections in the working memory system – so, for instance, you may continually lose your glasses, or find yourself walking into a room of your house only to find that you cannot remember what you came for. Such absent-mindedness tends to creep up on us as we age and occurs because our plans and intentions, which are chalked up on the mental blackboard, are easily wiped out by stray thoughts and other distractions. Stress and preoccupation can also cause such absent-mindedness, in addition to age-related changes in the brain.

The frontal lobes of the brain – located behind the forehead and above the eyes – are where the working memory system is located. Like the temporal lobes, which handle new learning, the frontal lobes are more vulnerable to the ageing process than other parts of the brain. The news, however, is not all bleak. Although neurons reduce in number with age, the remaining neurons send out new and longer connecting fibers (dendrites) to maintain connections and allow us to function reasonably well with only relatively small drops in ability.

This and other evidence suggests that the principle “use it or lose it” might apply to the ageing brain. Professor Shimamura studies a group of university professors who were still intellectually active, and compared their performance on neuropsychological tests with others of their age group, as well as with younger people. He found that on several tests of memory, the mentally active professors in their sixties and early seventies were superior to their contemporaries, and as good as the younger people. Research on

animals provides even stronger evidence of the effects of stimulation on the brain structure.

Professor Bryan Kolb, of the University of Lethbridge in Canada, has shown that animals kept in stimulating environments show sprouting and lengthening of the connecting nerve fibers in their brains, in comparison with animals kept in unstimulating environments. The beneficial effects of continued mental activity are shown by the fact that older contestants in quiz shows are just as fast and accurate in responding to general knowledge questions as younger competitors, suggesting that at least part of their intellectual apparatus is spared the effects of ageing because of practice and skill.

Such findings lead to the intriguing possibility of “ mental fitness training” to accompany jogging and workouts for the health conscious. Research in Stockholm by Professor Lars Backman and his colleagues has shown that older people can be trained to use their memory better, with the effects of this training lasting several years. So, there are some steps to train your brain. To start, the simple act of reading can help to improve mental sharpness. Read a chapter a night before going to bed and your brain power will improve. Reading is like brain exercise and it doesn't matter what you read as long as you read regularly.

Working logic puzzles can also help to strengthen your brain. Crosswords, jumbles and sudoku puzzles can be fun time-killers and improve mental function. Nintendo DS has even created a set of video games that improve mental sharpness called Brain Age. These types of puzzle games can help to

improve mental speed by challenging different parts of the brain. Do you know that water makes up about 70% of an adult's body weight? According to the biologist Carla Hannaford, Ph. D. in her book *Smart Moves*, "Lean people have a greater proportion of water to total body weight because fat has very little water, while muscle has a lot.

Water comprises more of the brain, with estimates of 90%, than any other organ in the body, with muscle next at 75%, and then kidneys. " As Hannaford explains, because your mind and body are oceans of water that need to be replenished to work well, it is recommended that under normal conditions a person should drink one third of an ounce of water per pound of body weight (about a quart per hundred pounds of body weight) each day with that amount doubled or tripled in times of stress. Finally, for a simple brain boost, try coffee. Coffee actually improves mental speed and function, but only minimally and for a short amount of time.

Drinking coffee before a test though might help to improve recall and focus. Though it's not a long-term solution, coffee can help for a those times when a short brain boost is needed. Just as people go bald and grey at different rates, so the same is true for their mental faculties. Why this should be the case for memory and other mental functions is not yet clear, but physical factors play a part. If Professor Shimamura is right, then the degree to which people use and stretch their mental faculties may also have a role to play.

Work Cited

Ian Robertson: " Mind Sculpture: Unlocking Your Brain's Untapped Potential".
Print paper Publish Date: June 2000 Ian Robertson. " Use it or lose it. " The

Times Feb 2005 Sue O’Connell: “ Focus on IELTS” Hatef Books, Publish Date:
2006 Micheal Cerreto. “ Mental Alertness - How to Enhance Mental Speed
and Agility By Drinking Water”. Ezine Articles. 3 Jan 2010.
[http://ezinearticles.com/?Mental-Alertness---How-to-Enhance-Mental-Speed-
and-Agility-By-Drinking-Water&id=905440](http://ezinearticles.com/?Mental-Alertness---How-to-Enhance-Mental-Speed-and-Agility-By-Drinking-Water&id=905440). Elizabeth Beeson. “ How to
Increase Mental Sharpness. ” eHow. 28 Dec 2009. [http://www.ehow.
com/how_5252886_increase-mental-sharpness.html](http://www.ehow.com/how_5252886_increase-mental-sharpness.html).