



Health Headlines - October 2013

BRAIN TRAINING IMPROVES MEMORY - NOT

INTELLIGENCE Your intelligence is not improved by

an increase in your working memory capacity, say researchers.

Brain games training may increase your brain's working memory (the equivalent of 'RAM' in a computer) but it won't improve your ability to solve problems, states a new US study.¹



WORKING MEMORY: Tyler Harrison of Georgia Institute of Technology, co-published a study in the Psychology Science Journal, which specifically tested if working memory capacity was increased.

Participants were first trained to memorise a string of letters that got progressively longer. Then they were tested for their ability to memorise a string of words and arrows (pointing in different directions).

Compared to a control group with no training, the trained group were able to remember longer strings of words and arrows.



Since a mnemonic (designed to aid the memory) or other strategy for memorising letters, wouldn't help memorising words or arrows, the findings support the idea that the participants' working memory had indeed been improved by the training.

INTELLIGENCE TESTS: Before and after memory training, the participants were given different types of pattern recognition - such as identifying the next number in a series or picking out an odd sequence of letters - to see if their fluid intelligence increased.

The control group who were given no working memory tasks, were tested in the same way.

However there was **no evidence** to suggest that the training improved fluid intelligence.

Harrison says it is a mistake to assume that because there is a strong relationship between working memory capacity and fluid intelligence that improving one will improve the other.

People who are taller are likely to weigh more, but if they put on weight they won't get taller. "It's the same with working memory and intelligence," says Harrison.

¹ Georgia Institute of Technology, School of Psychology

Duncan MacDonald
Jakarta 10 October 2013

SLEEP 'CLEANS' THE BRAIN: No wonder we feel refreshed after a good night's sleep - scientists have discovered that our brains have a self-cleaning mechanism that clears toxins when we are sleeping.

Apparently our glymphatic system (the brain's own network of plumbing pipes) kicks into action to carry waste material out of the brain.



University of Rochester researchers, used a new brain imaging technique called two-photon microscopy, that allows scientists to see deep inside tissue.

During sleep brain cells contract to increase the space between them so that spinal fluid can wash freely between the tissue. We have a cleaning system that almost stops when we are awake and starts when we are asleep. It becomes 10 times more active when we are asleep.

Australian Professor Ron Grunstein said "People who have disruptive sleep may have a defective removal system. Maybe we can find drugs that could remove unwanted compounds from the brain. It may also explain why people with sleep disorders have an increased risk of developing diseases like Alzheimer's, dementia or Parkinson's."²

LIFE'S LIKE THAT



Only 30 percent of us get eight or more hours of sleep per night

² Professor Ron Grunstein, head of sleep research, Woolcock Institute of Medical Research, Glebe, Sydney