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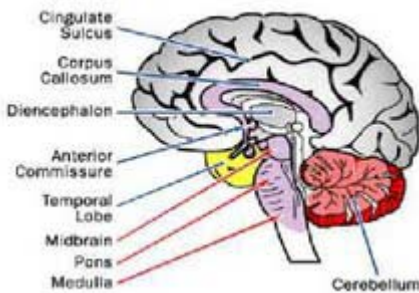
does grey matter matter more than white matter matters?

Thomas Hally

The brains of men and women differ in size, architecture, and function. Men and women exhibit different behavioral patterns because their brains are constructed from very different genetic blueprints.

The differences in circuitry that wires them up [men's and women's brains] and the chemicals that transmit messages inside them are so great as to point to the conclusion that there is not just one kind of human brain, but two, according to recent neurological studies.¹

Major Internal Parts of the Human Brain



The brain is made primarily of two different types of tissue: grey matter² and white matter³

Men think more with their grey matter, and women think more with white matter.

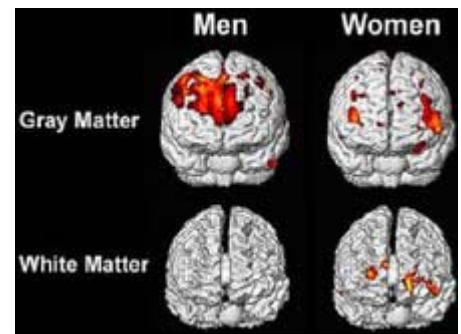
General human intelligence (the g-factor) appears to be based on the volume of grey matter in certain regions that are located throughout the brain, thus making it highly unlikely that there exists a single "intelligence centre," such as the frontal lobe. A University of

California at Irvine study conducted in 2005, found that there are significant differences in the areas where men and women manifest their intelligence.⁴

The study shows that women have ten times more white matter related to intellectual skills than men, while men have six and one-half times more grey matter related to intellectual skills than women. Grey matter, in both male and female brains, represents cerebral information processing centres, while white matter serves as the networking and connections of these

processing centres. Parts of the frontal lobe, where the decision and problem-solving functions take place, were proportionately larger in women as was the region that governs the emotions. Other studies have noted that the female hippocampus, a major area involved in memory function, also is proportionately larger in women than in men. Doreen Kimura, Visiting Professor in the Department of Psychology at Simon Fraser University in British Columbia, Canada wrote:

"The area of the anterior commissure seems to be larger in women, and some researchers have found that the back part of the corpus callosum is larger in women. If the larger area of the



commissures results in better communication between hemispheres, this could make some difference to the way men's and women's brains work."⁵

The UC Irvine study found that eighty-four percent of grey matter regions and eighty-six percent of white matter regions involved in intellectual performance in women were found in the brain's frontal lobes. Compare this to forty-five percent and zero percent for men, respectively. The grey matter that accounts for male intellectual performance is distributed throughout more of the brain. Men have proportionately larger parietal cortices than women. The parietal cortex is the area of the brain that processes signals from the sensory organs and is involved in space perception.

The amygdala region, which controls emotions and social and sexual behavior, is also larger in men. Men and women generally process emotional information in very different ways and traditional



(from p01)

feminine gender roles include such attributes as being nurturing, affectionate, warm and caring. Differing sharply, masculine characteristics generally show tendencies of aggressiveness, power and assertiveness.

The importance of testosterone and other androgens⁶ cannot be overemphasized as a cause of intellectual sex differences. Girls with this condition prefer playing with toys specific for boys rather than dolls and toys appropriate for girls. These high levels of androgens are due to a condition called congenital adrenal hyperplasia. Women, who were exposed to unusually high levels of androgens in the womb, generally score high on tests that measure spatial ability. In the modern workplace, some women with this condition tend to have jobs often considered "male-orientated."

Nicholas Wade wrote in *The New York Times*:

"Greater male variance means that although average IQ is identical in men and women, there are fewer average men than women and more men at both extremes. Women's care in selecting mates, combined with the fast selection made possible by men's lack of backup copies of X-related genes, may have driven the

divergence between male and female brains. The same factors could explain, some researchers believe, why the human brain has tripled in volume over just the last 2.5 million years."⁷

The ratio of brain weight to body weight is more predictive of IQ than brain weight alone. Although men's brains are normally ten to fifteen percent larger and heavier than women's brains, some researchers suggest there is no variance in the ratio of brain to body size.

A 1992 study of 6325 Army personnel found that men's brains had an average volume of 1442cc, while the women averaged 1332cc. These differences were shown to be smaller but to persist even when adjusted for body size measured as body height or body surface, such that women averaged 100g less than men of equal size.⁸

Men tend to outperform women in spatial awareness tasks such as navigation and mental rotation of objects and on tests of mathematical reasoning. Women score higher than men at remembering landmarks on maps, discrediting women's reputations as poor map readers. Females also excel in "emotional

intelligence"; have more language fluency at an earlier age than do their male counterparts; use more extensive vocabularies; exhibit better reading skills; and, early on, express themselves better linguistically than males, using more complex sentences.

While twice as many men as women populate the extreme right side of the intelligence scale, where the genius-level IQs run, the extreme left of the scale - where one finds the lowest IQs - is also where twice as many males as females are found. No single neuroanatomical structure determines general human intelligence, and different types of brains may perform equally well on IQ tests.

We all know that IQ tests challenge a variety of skills yielding scores that are used as a measure of general human intelligence. While males have more confidence than females in their overall cerebral prowess - including those of below average intelligence - oftentimes women underestimate their own smarts - even very bright women! Conceit and overbearing pride are unattractive human qualities, but self confidence is a very useful and admirable trait.

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¹ Michael McCarthy, "Women's brains are different from men's-and here's scientific proof." *The Independent*, July 18, 2008. From www.independent.co.uk. ² *The American Heritage Dictionary of the English Language*, Fourth Edition, n. 1. Brownish-gray nerve tissue, especially of the brain and spinal cord, composed of nerve cell bodies and their dendrites and some supportive tissue. 2. Informal Brains; intellect. ³ *The American Heritage Dictionary*, n. Whitish nerve tissue, especially of the brain and spinal cord, consisting chiefly of myelinated nerve fibers. ⁴ University Of California Irvine, "Intelligence In Men And Women Is A Gray And White Matter." *ScienceDaily*: January 22, 2005. ⁵ *Children's Britannica*, Jennifer Cox, (1996) Ed., *Encyclopedia Britannica*, Inc. 136-141 "Understanding the Human Brain," by Doreen Kimura. ⁶ *The American Heritage Dictionary*. ⁷ Nicholas Wade, "Pas de deux of sexuality is written in the genes." *The New York Times*: April 10, 2007. ⁸ C. D. Ankney, "Sex differences in relative brain size: The mismeasure of woman, too?" *Intelligence* 16: 329-336.



words...

champagne

Ah those bubbles; almost a guarantee to restore one's spirits. Elegant and chic, the source of millions of celebratory events around the world, champagne was the wine drunk by the rich and privileged during Napoleon's reign and was the wine that sparkled in the glasses of the tsars and dukes of imperial Russia.

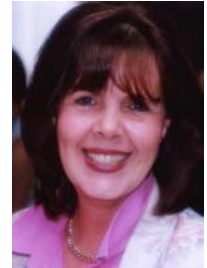
Almost two thousand years ago, Roman slaves excavated, for building materials, limestone quarries in the smoothly sloping ridges of the region of France now called Champagne. Today those hundreds of miles of chalk tunnels are used as the caves that house hundreds of millions of



bottles of champagne. 'Champagne' itself is derived from *campanien*, the chalk which, mixed in the soil, gives champagne its unique flavour.

In pagan times, humans were sacrificed by the Vikings to please the gods and thus 'christen' their ships. Later, it was enough to pour wine on the ground, but in the 18th century, the French began to use champagne to launch ships. Interestingly, champagne bottles are almost indestructible. Designed to avoid explosions during fermentation, the bottle often refuses to break, leaving the important personage suffering the

kate nacard



embarrassment of whacking the bottle against the bow of the ship fruitlessly.

According to the *Guinness Book of Records*, the largest champagne bottle ever was the one used to launch the huge passenger ship, *Monarch of the Seas*. It stood three feet high, weighed seventy-seven pounds and held about thirty-six regular-sized bottles. Fortunately for her, Lauren Bacall didn't have to lug it around the ship, as an elaborate system of ropes and pulleys was used to hoist the bottle, so that she could simply snip a cord. Fortunately, also, the bottle smashed against the ship and broke easily...

Hmmm. My spirits need restoring. I wonder if I have a bottle of champers in the fridge...



October 15 - 17 Australian Mensa Conference

on beautiful Sydney Harbour

amc2010@mensa.org.au

<http://mensa.org.au/AMC2010>

International Board of Directors (IBD) Meeting 2010

Thursday October 21 - Sunday October 24

Auckland, New Zealand

<http://ibd2010.mensa.org.nz>

ibd2010.mensa.org.nz



international calendar

September 10-12: Swiss Mensa Annual Gathering
in Bern. Details: <http://mensa-events.ch/ag2010>

September 17-19, British Mensa Annual Gathering
in Chester, England, diane@mensa.org.uk

October 7-10: Mensa Croatia Annual Gathering
(GOM2010) in Baška, island Krk, Croatia. Details: <http://www.mensa.hr/glavna/gom-2010/english>. Contact: gom2010@mensa.hr

October 15-17: Australian Mensa Annual Conference in Sydney, Australia
enquiries: amc2010@mensa.org.au

October 21-24: International Board of Directors meeting in Auckland, New Zealand ibd2010@mensa.org.nz

CRYPTIC WORDSQUARE (c) Therese Moodie-Bloom 2007

Each of the following cryptic clues has a solution of five letters.

- Matured rent with measure**
- Plea, unrecognisable around new driver for fruit**
- Odds spell mother to girl**
- Plant will tell?**
- Blast Ken as teller of tales!**

Arrange your five five-letter solutions in a 5 x 5 grid to form a wordsquare (ie 1 Across = 1 Down etc)

(Answer below)

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