

You can't trust a tortured brain: Neuroscience discredits coercive interrogation

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According to a new review of neuroscientific research, coercive interrogation techniques used during the Bush administration to extract information from terrorist suspects are likely to have been unsuccessful and may have had many unintended negative effects on the suspect's memory and brain functions. A new article, published by Cell Press on September 21st in the journal, *Trends in Cognitive Science*, reviews scientific evidence demonstrating that repeated and extreme stress and anxiety have a detrimental influence on brain functions related to memory.

Memos released by the US Department of Justice in April of 2009 detailing coercive interrogation techniques suggest that prolonged periods of shock, stress, anxiety, disorientation and lack of control are more effective than standard interrogatory techniques in making subjects reveal truthful information from memory. "This is based on the assumption that subjects will be motivated to reveal veridical information to end interrogation, and that extreme stress, shock and anxiety do not impact memory" says review author, Professor Shane O'Mara from the Institute of Neuroscience at Trinity College in Dublin, Ireland. "However, this model of the impact of extreme stress on memory and the brain is utterly unsupported by scientific evidence."

Psychological studies suggest that during extreme stress and [anxiety](#), the captive will be conditioned to associate speaking with periods of safety.

For the captor, when the captive speaks, the objective of gaining information will have been obtained and there will be relief from the unsavory task of administering these conditions of stress. Therefore, it is difficult or impossible to determine during the interrogation whether the captive is revealing truthful information or just talking to escape the torture. Research has also shown that extreme stress has a deleterious effect on the frontal lobe and is associated with the production of [false memories](#).

Neurochemical studies have revealed that the hippocampus and prefrontal cortex, brain regions integral to the process of memory, are rich in receptors for hormones that are activated by stress and sleep deprivation and which have been shown to have deleterious effects on memory. "To briefly summarize a vast, complex literature, prolonged and extreme stress inhibits the biological processes believed to support memory in the brain," says O'Mara. "For example, studies of extreme stress with Special Forces Soldiers have found that recall of previously-learned information was impaired after stress occurred." Waterboarding in particular is an extreme stressor and has the potential to elicit widespread stress-induced changes in the brain.

"Given our current cognitive neurobiological knowledge, it is unlikely that coercive interrogations involving extreme stress will facilitate release of truthful information from long term memory," concludes Professor O'Mara. "On the contrary, these techniques cause severe, repeated and prolonged [stress](#), which compromises brain tissue supporting both [memory](#) and decision making."

More information: O'Mara et al.: "Torturing the [Brain](#): On the folk psychology and folk neurobiology motivating 'enhanced and coercive interrogation techniques.'" *Trends in Cognitive Science*

Source: Cell Press ([news](#) : [web](#))

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