

## Scientists make detailed brainstem images

by UPI

PRINCETON, N.J. - U.S. scientists have developed a technique that can, for the first time, produce three-dimensional, high-resolution images of the human brainstem. The brainstem, a small structure located at the base of the brain, controls such biological functions as breathing and experiences of reward or pleasure. It is also a site for the production of neurotransmitters, the overabundance or absence of which in other parts of the brain are associated with disorders such as schizophrenia and Parkinson's disease.

"For a long time, scientists have tried looking at this area of the brain and have been unsuccessful -- it's just too small," said Kimberlee D'Ardenne, a postdoctoral student at Princeton University and lead author of the study. She and her colleagues obtained the images by applying specialized techniques to functional magnetic resonance imaging. The three-dimensional images allow scientists to observe the brain processes that accompany human movement and mental activities with unprecedented precision. The Princeton researchers said they plan to use the new technique to understand how the brain's physical structures give rise to the functions of the mind -- a field known as cognitive neuroscience. The study appears in the journal *Science*.

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